

# EFP-RC

Ver4.03.07

Operation manual

The 51th edition

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Suisei electronics system co.,ltd.

## About EFP-RC

This machine is a tool which executes on the board writing made of the maker which corresponds MCU alone. It is necessary to have the writing terminal corresponding to MCU of the substrate of try writing (target substrate) prepared beforehand to have this machine used.

Because this machine will be received the power supply from the target substrate through the writing cable and work, they should not be connections such as power supply cable outside equipments usually except a special case.

This machine equips with the CF card internally and file management is done by MS-DOS (FAT16) format, and this machine forwards the file for writing made with the personal computer and the writing procedure file, etc. in the CF card with a tool (USB communication) for appended MS-WINDOWS.

An external power supply need not be connected because the power supply will be received from the personal computer side (USB cable) when communicating it operate.

This machine will work if the operation condition is satisfied even if a necessary file is written directly on the CF card detached from this machine with the card reader attached to the personal computer etc.

### With the operation condition

1. The format of the CF card is a thing formatted with FAT16.
2. Object (HXW) and execution script file (PBT) file are must exist in the same folder.
3. Please make the design which can be the power supply of about 150mA from the writing connector on the substrate to this machine by 3.3V-MCU specification when writing it by using the power supply of the target substrate. The movement of this machine becomes unstable when the power supply is insufficient, and it connects and, in that case, external power supply (+5V) is used for this machine.

### ■ Correspondence OS

Microsoft®Windows®98 SE  
Microsoft®Windows®98 ME  
Microsoft®Windows®2000  
Microsoft®Windows®XP

### ■ Trademark and copyright

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## CF card file specification

MS-DOS(FAT16)

MS-WINDOWS(FAT16)

MS-DOS and MS-WINDOWS Correspondence for Sector number of cluster.

MS-DOS and MS-WINDOWS Correspondence for long file name.

MS-DOS and MS-WINDOWS Correspondence in which Japanese file name can be used.

capacity of CF card 32M-512 MB

### Limitation when file is down-loaded

There is the following limitations when the file is down-loaded with an our company tool.

1. Forwarding up to 12,058,624 bytes a file is possible by a usual format (4sector/cluster) of the CF card. (about 12Mbyte)
2. The capacity limitation doubles, too, when formatted by twice (8sector/cluster) and it is possible to forward up to 24.117248 bytes. (about 24Mbyte)
3. The capacity limitation decreases half, too and 6,029,312 bytes become the limitations of one file when formatted oppositely (2sector/cluster). (about 6Mbyte)
4. The message of 'Fail in writing the file'is displayed when it tries to load the file which exceeds this limitation in the dhow and it ends.
5. Please format freely by the handled capacity of the maximum file and use it.
6. The length of the file name cannot down-load the file of 25 characters or more.
7. These limitations do not exist when written directly on the CF card with the personal computer with CF card reader etc.

## Connection of apparatus with RC

1. If a target board is connected with RC by the connection cable for writing (16 pins) and a power supply is supplied to a target board, the power supply of RC will also be turned on it.
2. A personal computer and RC If it connects by the USB cable, the power supply of RC will be turned on it .
3. If +5V are connected from RC power supply plug, the power supply of RC will be turned on it .

### Note

Writing to MCU usually carried in RC in response to supply of a power supply from the target board, verification, etc. are performed.

At this time, operation of RC is unstable by the power supply supply capability of a target board. It may become. In this case, please carry out additional supply of +5V from an outer part at RC.

## Power supply is supplied to a target board from RC

1. Please connect a generous external power supply (+5V) to RC main part..
2. It may become an error in the writing which carries out power supply supply from USB under other USB-equipment connection states and the influence of supply capability etc.
3. When using it, supplying a power supply to a target board, there is the following restriction.
4. What the Vdd voltage of Target MCU is +5V specification.
5. The current capacity which can be supplied to Vdd (+5V) of a target board is to about 300mA.
6. There is little Vdd (+5V) inrush current of a target board.
7. (About decoupling capacitor 100micro F) MCU which does not need Vpp voltage at the time of writing.
8. The Vpp voltage at the time of writing is MCU within +8V-+13V.

### Note

Even if it is Correspondence MCU, it does not correspond to other VDD power supply voltage.

Keep in mind that it is only the MCU type of VDD voltage +5V to the last.

The interface board which supplies and writes in a power supply required for a target board is prepared separately.

Please ask support of our company.

## Menu screen

Item	Display	Folder link ahead	Note
1	FILES	CF ROOT	File operation.
2	PROGRAM	DOWNLOAD	Writing work.
3	MCU SET	MCU_TYPE	Arbitrariness.
4	USER	USER	Writing work subfolder and others.
5	FIRM UPDATE	FIRMWARE	Firmware version up.

## Switch of display menu

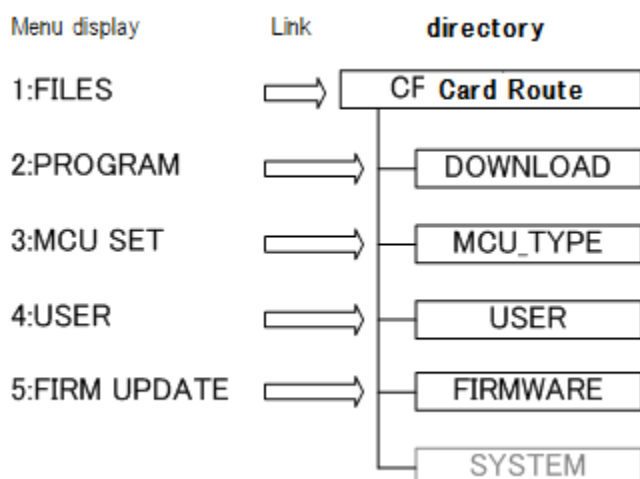
The switch an English display and Japanese (katakana) displays alternately can be done by pushing the key to A, B, and S at the same time while pushing the ↑ (UP) key while displaying the menu.

## Japanese (katakana) display menu screen

Item	Display	Folder link ahead	Note
1	ファイルソウサ	CF ROOT	File operation.
2	プログラム	DOWNLOAD	Writing work.
3	MCU セッテイ	MCU_TYPE	Arbitrariness.
4	ユーザー	USER	Writing work subfolder and others.
5	ファームアップデート	FIRMWARE	Firmware version up.

**Reference:** As for the folder of the menu, the display title and the link ahead, the changed thing can be done.

The directory constitution of CF card



## Difference of operation when selecting menu from selection and from FILES

### Operation from FILES

- It is suitable for the file arrangement for the preparations such as writing the target substrate and verify.
- The opening of the folder, the progress of the folder hierarchy, and the return correspond by couple 1.
- The deletion of the file and the folder becomes possible.
- The folder making becomes possible.
- The edit of the HXW file becomes possible.
- The folder which opens from the menu can be changed.

### Operation from menu

- The mistake makes writing the target substrate and verify, etc. operate few, and quickly.
- It aims at the thing that FILES can access the folder dependence early if it memorizes in the folder which can be called from the menu bringing the file always used together. Therefore, the return of this folder always returns to the head of the menu.
- Neither the file deletion, the folder deletion nor the folder making, etc. start to prevent the malfunction.

## Special file extension used with RC

### About the extension of the file

1. Extension (PBT) file which wrote execution procedure.
2. Extension (HXW) file which converts target MCU program for RC communication.
3. Extension (FXW) file which corrects firmware of RC, and uses it for improvement etc..

#### ■ PBT file

Ascii text file which wrote execution procedure of command corresponding to target MCU.

#### ■ HXW file

File which changes MOT/S file of target MCU to binary form only for EFP-RC.

When target MCU program in full area (a0000-ffff) is made with MOT/S as an example of the reference in M16C62P, it is 1.07 MB it becomes the capacity of (1,130,510 bytes).

384 KB when converting it into Hxw which uses this with RC in the personal computer The time required for (393,728 bytes) and conversion ends at several seconds.

The processing time is shortened because the time required when the file is forwarded as an advantage by the USB communication becomes about 1/3, it writes, and it is not necessary to convert it into the binary file at verify and it becomes high-speed.

Please convert the target program of each MCU that the customer is developed into HXW with a tool of our company EFP-RC Ver.1.00.00, down-load to the same folder as PBT (execution) file to be operated, and use it.

#### ■ FXW file

It will be distributed by the correspondence situation of the model by our company when rewriting is necessary for the firmware part in the future. Please down-load to folder FIRMWARE(FIRM UPDATE) and preserve it. The firmware is updated by executing the file. The file version is displayed in steps after LCD is displayed when the Fxw file is selected and S key is pushed, and the instruction of the update is displayed in the lower.

### Reference

When this file is down-loaded to the folder where the same file name exists, the file down-loaded to the existing file is compulsorily overwritten.

When it choose Motorola MOT(s) and Intel Hex file from **VERSION 402.07** after download and push the S key, it add a function to make to convert it into Hxw file of the direct same name, and to make (except 4bit and draft mode use).

### Restrictions:

MOT(s) to convert and address data of Hex file is necessary that for all lines equal in ascending order. Please make it after deleting a same name file when you want to make it newly,because it is canceled when there is already the Hxw file of the same name.

## **Power supply turning on outline of operation**

Version No. of RC is displayed in steps until shifting to the menu when the power supply is turned on after LCD is displayed, and the lower of the LCD display is displayed for one second in order of empty capacity of CF CARD and the set target MCU name.

When detaching CF CARD, and the format are the outside for EFP-RC, **【-FILE SYSTEM ERROR-】** is displayed, and all the operations are prohibited.

## **Outline of menu operation**

### **Version/PBT excuted number**

Version No. and CF CARD capacity of RC are displayed for two seconds when the ←(LEFT) key is pushed with the menu displayed, and it returns to the menu screen. After displaying LCD, steps display individual ID of CF CARD when keys other than the ←(LEFT) key/S key are pushed while displaying version No.. After it enters FILES, individual ID is not displayed and after the power supply is turned on, it comes to display the volume label of CF CARD. The key input of something returns to former menu screen though it displays by the display timer's of three seconds starting the other day.

When PBT is an execution frequency and is executed, the number of error generation is displayed when S key is pushed.

### **MCU-TYPE**

If A key is pushed with the menu displayed, it becomes setting/the change mode of target MCU.

It operates by using this setting when MCU is not set in the PBT file.

Please confirm and set target MCU used without fail when using it for the first time.

### **The screen display**

It returns to former display when the key no input timer of 60 seconds works at the folder making/the correction and the correction of the menu name, and there is no key input of the other day.

As for the selection when each command is executed, the key input timer of ten seconds works. After the execution result is displayed, the result is maintained in the command end for 60 seconds. Meanwhile, It returns to former display when there is a key input of something.

When the error occurs when each command is executed, the content of the error code and the error is switched and displayed.

### **HXW**

When HXW file is selected, the confirmation of the check sum and the writing data can be binary edited.The property of the file (number of bytes and attributes at the final update time with Last Modified) can be displayed.

### **Execute Memory**

Even if it memorizes in the memory to facilitate the execution selection of the PBT file, and the folder is not traced, it is possible to execute it by few key input. The command can be executed with two keys by being able to memorize the final command when this memory is executed, and turning on the power supply. (convenience when continuousness executing it)

### **Display empty capacity of CF CARD**

When the file the folder, etc. are deleted, empty capacity of CF CARD after it deletes for three seconds is



displayed.

### Discontinue the operation

The operation after the line of the command under execution can be discontinued by keeping pushing B key while executing the PBT file.

### The execution frequency

The execution frequency of the PBT file and the number of error generation can be recorded, and the execution frequency of the PBT file can do the thing to inform vanishing to the subtraction whenever executing it from the value set beforehand of it because of the display and the warning sound.

### Key operation at menu

Outline of operation at Menu display

Movement	Input key	Function	Explanation
Menu display	↓ / ↑	Scroll	11
	→	Menu that is displayed a cursor, Folder opening	
	←	EFP-RC version number, CF card Display space capacity	
	A	Target MCU main body setting	12
	B	Setting file of user memory	13
	S	Memory practice mode	14
	↑ + B	Menu file select mode	15
		Menu title edit mode	
	↑ + S	Setting in return time at the time of the command end	16
	↑ + S → S	Set it in indication time between commands	16,17
	↑ + S → S → S	RC start time setting	17
	↑ + S → S → S → S	At the time of power supply ON, PBT file automatic practice setting	18
	↑ + S → S → S → S → S	At the time of HXW download, automatic Checksum setting	18,19
	↑ + S → S → S → S → S → S	Setting Download time measurement	19

Key movement outline except the menu display

Movement	Input key	Function	Explanation
Select File/folder	↓ / ↑	Scroll	20
	B + ↑	Edit name of file, folder	22
Select folder	→	Folder open	20
	←	Return to a folder in the one	
	A	Delete folder	
	B	Display folder property	
	S	Not function	
Select file	→	Not function	20
	←	Return to a folder in the one	
	A	File delete	
	B	Display file property	
	S	Movement choice mode /Dump indication	
Select file MOT, HEX	S	MOT, HEX →HXW Conversion	7
Movement choice mode	B	Cancellation	20
	S	Practice	
PBT file Select	→ + S	PBT File practice + Report file making	21
Report File select	→ + A	Delete all report file in the folder	
On display Version Number	Except S	Display CF card	11
	Except S→	Display USB-PID	
	Except S	The all counter indication of PBT practice number of times	
	Except S→		
	Except S→		
	S	PBT practice number of times, Run time, indication of error number of times	
During PBT file practice	B Push and hold	Script stop on the way	8

## Direction key ( ↑ · ↓ · → · ← )

### ■ ↑ (UP) , ↓ (DOWN)

The cursor which has blinked is moved and five items of the menu are specified.

1: FILES is a route of the CF card which does all the file operations.

2:-5 the following is short cuts which have been linked with the folder (directory) which exists on the CF card.

In the state of the first stage, the position of the folder can be originally changed by the user setting though regulated folders which exist in the route of the CF card have been linked.

### ■ →(RIGHT) Key

The menu and the folder to which the cursor is displayed are opened, it moves, and the existing file name is displayed. When two items or more exist, it is possible to confirm it by scrolling by ↑ (UP)/ ↓ (DOWN) key.

When the file name is enclosed with ‘ < ’ > ’ , the thing to open the folder can be done by matching the cursor to this and pushing the →(RIGHT) key because it is a folder.

The down-loaded file is preserved in these opening folders.

### ■ ←(LEFT) key

Version No. of EFP-RC and capacity of the CF card are displayed for two seconds. The practice number of times of PBT and the run-time error outbreak number is displayed when S key is pushed while displaying empty capacity.

It is displayed it by CF card ID, USB-PID when ↓ key is pushed while displaying empty capacity.

When push the ↓ key next, it return to menu display. The display of the screen is continued till you input a key.

### **With the error generation frequency display when PBT is an execution frequency and it is executed**

The execution frequency of PBT and the display the lower are maintained in the display upper row though display the number of error generation, turn off the power supply.

It cancels initialization with B key of each counter in 0 when A key is pushed.

↓ (DOWN) key, it changes to (Preset-mode) which does -1 whenever executing it from the value by which the execution frequency counter of PBT is set beforehand when the key is pushed. It is set that S key is pushed after it moves to the digit which wants to change with →(RIGHT)/←(LEFT) key and it changes with ↑ (UP)/the (DOWN) key and sets the error generation frequency count in 0 because it becomes a set value input screen if S key is pushed. When B key is pushed, setting is canceled.

When 0 is set from 0 to 59999, the value which can be set is changed to a usual up-counter.

Please set in 0 of A keys because of the mis-deletion prevention of the counter value when setting it in (Preset-mode) and set 0 in initialization by setting the counter value again to return it to an invalid, usual counter.

Each counter value blinks for the confirmation when the PBT execution frequency vanished when using it with (Preset-mode), it is displayed, and the warning sound ((\*pipipi\*) (\*pipipi\*)) is generated. Warning is stopped when B key or S key is pushed and it returns to the frequency multiplication counter of usual PBT.

At this time, it is possible to change to (Preset-mode) again by pushing the ↓(DOWN) key if it is necessary.

## **A** key operation at menu

### **(main body set mode of target MCU)**

The group name of set MCU is displayed in steps after LCD is displayed, and the instruction to setting is displayed in the the lower. The main body is set to the operation procedure of MCU on the target substrate by this setting.

It returns to the menu when the display timer of ten seconds enters, and there is no key input of anything.

It returns to the menu when B key is pushed.

**Please select target MCU which wants to change with the ↑ UP/ ↓ DOWN key, push S key, and set it.**

It does not set when returning to the menu with the timer even if the display is changed.

It is maintained even if the power supply is turned off when set, and when the power supply will be turned on from next time, target MCU name is displayed.

### **State to use main body setting**

When the PBT file is selected after the folder is opened and memory execution (PBT) file in case of the case to be executed directly is memorized, this main body MCU setting is used as target MCU. (Only when T command is not described in the PBT file)

### **Priority use order of target MCU setting**

1. T command is described in the PBT file (The memory execution and the main body setting are disregarded).
2. The memory execution (The main body of EFP-RC setting when the PBT command is memorized in the memory is used).
3. The EFP-RC setting (When PBT which exists in the folder is selected, and it executes directly).

#### **Attention**

2.and.3., when it is not described T command to the pbt file.

## **B** key operation at menu

### (set mode of user memory file)

1. The memory file memorized when the memory is executed is selected.
2. The user memory file being used now is displayed first.
3. 30 PBT files can be memorized in one user file.
4. Reading is released when using it only after the CF card is exchanged.
5. Presence (←) of user file name (USERxx) being read to steps now after LCD is displayed and data and modes (READ/WRITE) are displayed and the instruction to setting is displayed in the the lower. (xx=01-99)
6. It returns to the menu when the display timer of ten seconds enters, and there is no key input of anything.
7. The memory, the memory execution, and the memory deletion are done for this user file thereafter when the user file read with the ↑ UP/ ↓ DOWN key can be changed, and it changes.
8. Which the PBT data is memorized when there is ← display in the right of the selected user file name.
9. When the user file without the PBT data is read, the memory execution becomes invalid.
10. The memorized content can be copied by switching the mode display to WRITE pushing the →(RIGHT) key when there is data by the thing to do WRITE to other user files with the ↑ UP/DOWN key. → (RIGHT) READ and WRITE change alternately if the key is pushed. The →(RIGHT) key becomes invalid when there is no data.
11. As for the user file to which data is memorized, the thing to do batch (30 pieces) deletion with A key can be done.
12. The memory execution stops immediately, too, when the user file being read now is deleted.
13. If the folder is opened to memorize the execution file in the user file, the PBT file which wants to be executed is selected, and S key is pushed, it becomes a selection of the mode of execution. The channel which has become empty in from MEMORY01 to MEMORY30 is selected if A key is pushed and it is displayed though usual PBT is executed when S key is pushed. PBT is memorized with S key, and B key is canceled. It is possible to write by changing the storage position with the ↑ UP/DOWN key, and present PBT has already been overwritten in S key because PBT has memorized it when there is ← display at the right of MEMORYxx. The execution file is memorized including the MCU setting set at that time. Only it deletes when A key is pushed in this state (There is ← display), and it does not overwrite. When the deleted channel is the final command storage channel, it is reset in the first channel.
14. When the PBT file memorized once is overwritten in down-loading etc. , the memory is deleted.
15. The thing to switch all of the memory execution file (30 pieces) instantaneously can be done by switching the user file whenever the user changes by making an original folder for each user when this machine is used among two or more users, and memorizing an original PBT command to each user in another user file.
16. USERxx can be used from 01 to 99. (99×30=2970 execution files can be memorized)

## **S** key operation at menu

### (memory execution mode)

1. It is possible to execute it immediately by selecting the file which wants to be executed with the ↑ UP/ ↓ DOWN key from among 30 PBT files of the read user file and pushing S key.
2. It is possible to operate it easily by memorizing a lot of files of the use frequency in the user file.
3. When the user file without data is read, it is invalid to push S key. (initial state)
4. Memory channel number (MEMORYxx) memorized in steps after LCD is displayed, and the execution file PBT file name is displayed in the the lower. (Extension PBT is not displayed)
5. The memory channel number display switches by the execution instruction every second, is displayed, and the switch display of the instruction stops after executing either of key operation when selecting it pushing the ↑ UP/ ↓ DOWN key.
6. When the memory is executed, the setting is used if the MCU setting set in the equipment is not used, and there is T command in the MCU setting when the memory is memorized or the PBT file.
7. It displays as a result after it executes it thoroughly to the usual command execution after it executes it, and the done thing can be done by selecting the memory execution with the ↑ UP/ ↓ DOWN key continuously if it is necessary because it returns to the execution file selection screen after something key is input. It returns to a necessary menu when B key is pushed if it kicks.
8. It sets/when the memory channel is selected, It is released by the →(RIGHT) key to be able to do the thing to memorize the done final command in the memory execution, and to memorize it. \* sign is displayed on a right edge of the display of the memory number when set. (It is released in the state of the first stage) And, the final command done in the past is selected first when the power supply is turned on and it enters the memory execution mode first and it is displayed.
9. It returns to the menu when there is no key input of anything by the display time timer's of ten seconds changing into the display by which whether it deletes it when A key is pushed while selecting the memory channel is selected, and starting. When the channel can be deleted by pushing S key, and B key is pushed, it cancels. It is reset that the channel set in the final command storage mode is deleted in the first channel.
10. It returns to the menu display when B key is pushed on the execution file selection screen to end the memory execution mode.

#### **Attention:**

1. When the memory is executed, the memory channel is deleted, and not displayed because it is not possible to execute it when deleted mistake the PBT file memorized in the user file. In addition, when the channel is allocated in the mode by which the final command is memorized, It is reset in the first channel.
2. With two or more RC, the memory execution can be immediately used because the user file is preserved on the CF card by the read thing by the replacement of the CF card with other RC.
3. Peculiar information on the CF card on each RC equipment is memorized, and the state of the user file read when the first power supply is turned on is deleted so that RC that the CF card is exchanged may avoid malfunctioning.

## key + key operation at menu

### (menu file selection mode)

1. The selection and the menu title of the menu title file are made by user's favor.
2. The menu file being used now is displayed first.
3. Presence (←) of menu file name (MENUxx) being read to steps now after LCD is displayed and data and modes (READ/WRITE) are displayed and the instruction to setting is displayed in the the lower. (xx=01-99)
4. It returns to the menu when the display time timer of ten seconds enters, and there is no key input of anything.
5. All folders linked with the menu title name and the menu when the menu file read with the ↑ UP/ ↓ DOWN key can be changed, and it changes are Updated.
6. When the user file without data is read, it becomes regulated set.
7. It is a file to which data is memorized when there is ← display in the right of the selected menu file name.
8. The memorized content can be copied by switching the mode display to WRITE pushing the →(RIGHT) key when there data to WRITE to other menu files with the ↑ UP/ ↓ DOWN key. →(RIGHT) READ and WRITE change alternately if the key is pushed. It becomes invalid even if the →(RIGHT) key is pushed when there is no data.
9. It shifts to the menu title edit mode when the ←(LEFT) key is pushed when there is data.
10. As for the menu file to which data is memorized, the thing to do the batch deletion with A key can be done.
11. The menu file being read now cannot be deleted.

### (menu title edit mode)

Please refer to [the change in the menu name](#).

## key + key operation at menu

### (Return time set mode when command ends)

1. It returns to the execution screen after the result is displayed for 60 seconds after the PBT command is executed usually. You can change this return time though it returns at once if there is something key input.
2. When setting starts, it is displayed in LCD in the state of the first stage as **【REMAIN TIME=60sec.】** .
3. It returns to the menu when the set timer of ten seconds enters, and there is no key input of anything.
4. It becomes a mode which does not return until there is a key input after executing the command and displaying the result when setting from 0 to 60 seconds is possible by the **↑ UP/ ↓ DOWN** key, and it sets it at 0 seconds.
5. When setting is changed, setting is completed, and if S key is pushed, It becomes a cancellation in B key.
6. Even if the power supply is turned off, it maintains, and the set value is displayed from the next setting.
7. It becomes the setting in display time between the next commands when it finishes this setting with S key.

### (Set it in display time between commands)

1. For each command run time of PBT file, it is displayed a result for confirmation every one second. (In Normal) It can omit this display time.
2. In setting, it is displayed with [Interval time = Normal] on LCD in the initial state. About 2 seconds later **[U/D SEL.B=CAN S=SET ]** is displayed in turn.
3. A timer enters in setting time of 10 seconds, and anything shifts for the next setting when there is not key input.
4. When it set to display of the [Interval time = Short] with **↑ · ↓** key, carry out a command. When it is not error, carry out the next command after (400mS after the sound effects of the result.It can shorten execute time.
5. When it set to display of the [Interval time = Non] with **↑ · ↓** key, carry out a command. When it is not error, carry out the next command immediately. It can shorten execute time.
6. When it changed setting, Setting is completed when you push S key, Using B key, finish a setting mode.
7. The setting maintains it even if it switch off, and in the next setting the mode is displayed.
8. About Short setting, it performs normal result display (as for three times of buzzers) by practice last command.
9. About Non setting, it performs normal result display (as for two times of buzzers) by practice last command.
10. When an error occurs, it performs normal error display.



11. The Wait command performs normal weight movement.
12. It becomes the time setting of the next RC start when it finishes this setting with S key.

Following display time is omitted in the case of the Short/Non setting.
---

T command (MCU set) confirmation display / two seconds
--

Comment line / two seconds
----------------------------

Check sum display after the command practice/ one second
--

### (Time setting at the time of RC start )

1. When you take power supply ON to this, main menu is displayed, after displayed MCU type of the main body setting by each one second, space capacity of memory card (CF). It can omit these display and can make start early.
2. In setting, it is displayed to LCD in an initial state; to [Power on time set?]. About 2 seconds later, It is displayed in turn with [U/D SEL. B=CAN S=SET].
3. It is displayed in [Power on = Normal] at the initial state in the upper section.
4. When setting time timer of 10 seconds enters and nothing has key input, it shifts for the next setting.
5. Please push S key after change to display of [Auto Execute = on] with a ↑ · ↓ key to change it
6. It finishes setting mode with B key
7. This setting maintains even if it switch it off, as for the next setting, the mode is displayed.
8. when it finish this setting with S key, it become the automatic check sum setting in the next HXW download.

### (Setting of self-executing of PBT file at the time of power supply ON)

1. At the time of power supply ON, it is self-executing with file of one set of PBT and HXW file on a route.
2. In setting, it is in an initial state; in the LCD lower berth [ Start-up mode? ] is displayed. About 2 seconds later [U/D SEL.B=CAN S=SET] is displayed in turn.
3. It is displayed in [Auto Execute = off] and the initial state in the upper section.
4. It enters in setting time timer of 10 seconds, and anything shifts for the next setting when there is not key input.
5. Please push S key after display of [Auto Execute = on] with ↑ · ↓ key to change it.
6. Finish a setting mode with **B** key.
7. This setting maintains it even if it switch it off, and, as for the next setting, the mode is displayed.
8. When it finish this setting with S key, it shift the automatic check sum setting in the next HXW download.

### (Check sum setting automatic in HXW download)

1. Check check sum automatically when it download HXW file.
2. In setting, it is in an initial state; in the LCD lower berth [HXW Download check] is displayed. About 2 seconds later [U/D SEL.B=CAN S=SET] is displayed in turn.
3. It is displayed [Auto check = off] to initial state in the upper section.
4. It enters in setting time timer of 10 seconds, and shifts for the next setting when there is not any key input.
5. To change it, please push S key after change for display of the [Auto check = on],with ↑ · ↓ key.
6. **B** key finish a setting mode.
7. This setting maintains it even if it switch it off, and, as for the next setting, the mode is displayed.
8. When Check sum error occurs in HXW file which is downloaded, it is displayed with a warning sound and [CHECK SUM ERROR].Please check this HXW file.
9. When there is HXW file and check sum error occurred while you did drag & drop of plural files, it passes to return time of the command run time above or displayed till input an anything key, and a download is continued after this.
10. When it finish this setting with S key, it becomes the display setting and measurement of the next downloading time.

**(The measurement setting of the downloading time)**

1. Processing time when you download the file is measured by a unit for 10 milliseconds, and is displayed.
2. In setting, it is in an initial state; in the LCD lower berth [Download time Check?] is displayed. About 2 seconds later [U/D SEL.B=CAN S=SET] is displayed in turn.
3. It is displayed [Time check = off] in the initial state in the upper section.
4. It enters in setting time timer of 10 seconds, and returns to a menu when there is not any key input.
5. To change it, please push S key after change for display of the [Time check = on], with ↑ · ↓ key.
6. This time measure displays when it downloads only once after the setting permission, measures is not displayed afterward. When you want to measure it, please perform this setting again
7. When you carried out PBT file without downloading it, the measurement display is canceled
8. The result display of measurement time return to normal display when you inputs some kind of keys.
9. When you downloaded the next during display, the display is erased and shifts to the next download indication.
10. By a movement state with USB machinery connected elsewhere, there is a case to change to some extent in processing time.
11. When you did drag & drop of plural files, it is not displayed.
12. It displays by the second unit if it downloads a big file and, by the elapsed times more than one minute.

**Display example**

DOWNLOAD TIME = 2.18sec.
-----------------------------

<b>Download time</b> = 2.18sec.
------------------------------------

## Direction key, except where not MENU position.

### ↑·↓ key operation when file and folder are selected

- To select it when two or more files and folders exist, the cursor is moved.

### Key operation when folder is selected

#### ← key

- It returns to the folder above one. (Return to the menu if it is on the route)

#### → Key

- The folder is opened and the contents displays it in the folder.

#### A key

- It becomes the [operation selection mode](#) whether to delete this folder.

#### B key

- A folder property is displayed. Refer to property display function.

#### S key

- Function none.

### Key operation when file is selected

#### ← key

- It returns to the folder above one. (Return to the menu if it is on the route)

#### → Key

- Function none.

#### A key

- It becomes the [operation selection mode](#) whether to delete this file.

#### B key

- The file property is displayed.

#### Example of display

2005/02/28 17:10:00 257Kbyte a-----	Final update date and time Number of Kbytes attributes	⇨ Key ⇩	2005/01/10 10:32:44 262656byte a-----	Create date and time Detailed of bytes attributes
--	---	------------	--	--

#### S key

- If the extension of the file is PBT , it becomes the [operation selection mode](#) of execution.
- It becomes the [operation selection mode](#) which the check sum display or the edit to be done for Hxw.
- If the extension of the file is Fxw ,the version of the file is displayed, and it becomes the [operation selection mode](#) whether to do version up or to display the check sum.
- Other files do the dump display.

### Operation selection mode

B key usually becomes a negative operation, and does not do and cancel the operation.

S key usually becomes an affirmative operation, and executes the operation.

- The operation changes into other keys by the processing which entered the mode.

## + Key

When a PBT file is chosen and it pushes simultaneously, executing each command, a file is created and the processing result for every command is reported.

Three digits are automatically given for four characters of a head after beginning by [RPT\_], and a report file name is created.

[RPT\_XXX.TXT] If a same name file exists, the file name leaves, will carry out a number +one and will be created. Since cursor is moving to the created report file after command execution, the S key can be pushed and upload can be carried out at a check or a personal computer.

### The example of a data output of a report file

Test.pbt

[TRACE START]

<t=2>

M16C/62P Group  
T COMMAND OK!

<i,ffffdf,,1>

SET TO MCU ID!  
I COMMAND OK!  
TIME = 0.118sec.

<e,,1>

MCU ERASING NOW!  
E COMMAND OK!  
TIME = 4.258sec.

<b,e8000,ffff>

BLANK CHECKING NOW!  
CHECK SUM = 8000  
B COMMAND OK!  
TIME = 12.338sec.

<p,test.hxw,e8000,ffff,1>

DATA PROGRAMING NOW!  
CHECK SUM = 6CAF  
P COMMAND OK!  
TIME = 23.356sec.

<v,test.hxw,e8000,ffff,1>

DATA VERIFYING NOW!  
CHECK SUM = 6CAF  
V COMMAND OK!  
TIME = 12.793sec.

[TRACE END]

## + Key

When a report file[RPT\_XXX.TXT] is chosen and it pushes simultaneously, as a result of all existing in the folder, a file is deleted collectively.

## Property display function

If the → key is pushed with the B key pushed, the details and the file creation date of capacity will be displayed.

A file property (the last refix date, the last updating time, the number of bytes, attribute) is displayed.

### Example of display













## Correction of file name and a folder name

If the ↑ key is pushed with the **B** key pushed, it will become the edit mode of a file name and a folder name.

Operation key at the time of edit.

Key	Name	Outline
↑	UP	Character change of a cursor position (the return direction)
↓	DOWN	Above Character change (the progress direction)
→	RIGHT	Character position selection to change (it can add the character of one character at a time on the right of character last.)
←	LEFT	Above Character position selection
A	A	A capital letter, small letter change /one-character elimination
B	B	Edit is canceled.
S	S	A change name is decided and created.

1. A file name and a folder name are displayed, and if the following operation is performed in the state where the cursor of \_ (underline) is set as the left end of a line, a file name and a folder name can be edited.
2.   cursor is moved to a character to change by the key.
3. In order to change the character of a cursor position, the  key and the  key are used.
4. When the character of a cursor position is an English character. Capital letter small letter conversion can be performed by turns by the  key.
5. When increasing the number of characters, if cursor is moved and the  key or the  key is pushed to the blank at the right end of a character by the → key, in the case of a folder, the character of A will be inserted as an initial value.
6. If cursor is moved to the position of the dot [.] of an extension in the case of a file and the  key or the  key is pushed, the character of A will be inserted as an initial value.
7. Cursor is moved to the position same when reducing the number of characters, and it is . If a key is pushed, the last character of a character will be deleted and cursor will move to the one left.
8. In file name change, change of the number of characters cannot do an extension only in change of a character.
9. If the S key is pushed, edit will be ended and a file and a folder name will be changed.

**Note :** \*If a change of the file name currently used for memory memory execution and a folder name is made, since it will become impossible to perform and the memory memory will be deleted, a re-setup is needed.

\*Since a link place stops opening from a menu when the change function of the link place corresponding to a menu name is being used if a user changes the folder name set as the link place, a re-setup is needed.

## ■ PBT file automatic practice at the time of the power supply injection

Please use it in the case of to carry out a writing file repeatedly after taking on the power supply.  
It does not need special setting like memory practice.

### Setting

Elimination (recommendation) of all the files on the route; and finish to download PBT file and HXW(Or mot/hex) file.

When it takes power supply on the next time, PBT file name on the route which stored in the upper section of LED is displayed; in the lower berth [Ready to start...] is displayed.

Please do it to [on] in <<setting of PBT file automatic practice at the time of power supply takes it on>> when the menu display without it being displayed.

It carry out PBT file when push **S** key and return to above display when finished.

When it pushed **B** key , **←** key, it finish automatic practice and move to a menu.

The automatic practice is continued till pushing these keys.

### The reason of the recommended condition

It search with turn of PBT, hxw, mot, hex on the route of the CF card at the time of the power supply on.

Register pbt file which is found first as an execute file

without checking connection of execute file (pbt) and data file (hxw).

When there is a file of the plural same, it starts between files without the connection and causes malfunction. On the route, please use it with script file (PBT) for writing, one set of the object file (HXW/mot/hex).

### Reference:

- When there is not HXW file, and downloaded Motorola MOT file or Intel Hex file, it make to display [Converting now...] at the time of power supply ON for the first time display it with **]** .
- When this function is not necessary, please select [off] «at the time of power supply on, automatic settign of PBT file» .

## The script command

Script command which can be used in PBT file

Please describe all the script commands by a British number of normal-width including the file name.

A British big and small character is processed as the same.

Command	Outline of command
<b>Erase</b>	Flash ROM with built-in MCU, all areas are deleted. Command format : e , [lock bit form]
<b>Block Erase</b>	Flash ROM with built-in MCU is block deleted. Command format : e, Block End (Even)address, lock bit form
<b>Read</b>	The data with built-in MCU ROM to written to the Hxw file. Command format : r,[Hxwfile name],[start address],[End address]
<b>Blank check</b>	Whether which is deleted with built-in MCU ROM is confirmed. Command format : b,[start address],[End address]
<b>High-speed blank</b>	Confirm whether built-in MCU ROM is erased. Command format : b,[start address], [End address],1
<b>All block Blank check</b>	Confirm whether all blocks of built-in MCU ROM are erased. Command format : b
<b>Verify</b>	The data with built-in MCU ROM is collated with the content of the Hxw file. Command format : v,[Hxw file name],[start address],[End address]
<b>High-speed Verify</b>	Collate the check sum of the Hxw file and built-in MCU ROM data. Command format : v,[Hxw file name], [start address], [End address],[CRC Sam value]
<b>Program</b>	The content of the Hxw file is written with built-in MCU ROM. Command format : p,[Hxw file name],[Start address],[End address],[Lock-bit form]
<b>Lockbit</b>	The lock bit with built-in MCU ROM is set in the lock. Please use this command only for the kind for the lock bit. Command format : k,[Block end(even) address]
<b>ID- collation</b>	The ID code protect function is released. Please use this command only for the kind of ID code protecting. Command format : i,[IDArea start address],[IDCode ],[IDCode form ]
<b>MCU-Set</b>	Target MCU is set. Command format : t=xx (Target MCU No. )
<b>Read-Protect</b>	The Read protecting is effectively set. Please use this command only for the kind of read protecting. Command format : y
<b>Wait</b>	The script operation is stopped temporarily. Command format : w[=xxWaiting time (second number) ] w=0 It becomes a key input waiting.
<b>Baud-rate set</b>	Command format : s=x ;x=0 to 4
<b>VDD Supply</b>	Command format : x=1 MCU which does not correspond to this function, it is ignored.



Lock bit form: 0 or 1 is set in the lock bit form the program command.

0: Effective 1: Lock bit invalidity

ID code form: 0 or 1 is set in the ID collation form set by the ID collation command.

0: Input ASCII codes 1: Input HEX codes

When there is a domain where ROM does not exist between a start address and an end address, please divide and indicate to execute a command twice to the address of a before this domain , and the address after a domain.

## ■ Erase command

All areas of flash ROM with built-in MCU are deleted.

### Format:

e , lock bit form

### Description example:

e,,0 ; a lock bit -- effective (in the case of MCU to be indicated)  
 E,,1 ; a lock bit -- invalid (in the case of MCU to be indicated)  
 e ; In the case of MCU without a lock bit function

### Details

The thing not to delete the block alone can be done by making the lock bit effective if a certain block is set in the lock in MCU that the lock is possible.

All blocks are deleted in the lock bit invalidity regardless of the state of the lock and the unlock.

Specification is necessary for MCU of the lock bit description, and, besides, it omits it.

0 or 1 is set in the set lock bit form.

0: Lock bit effective

1: Lock bit invalidity

The status of which it made an error when (Erase-Error) is generated is displayed.

### Correspondence

Built-in flash ROM MCU

### Special mark of M3803MCU

Only this model must describe the comma after the command, and specify the first address with built-in MCU ROM used for an argument. When this description does not exist, it becomes a command error.

Description example: e and 1000; ROM first address is set in 1000H.

### Attention

The error occurs when the addresses other than the correspondence address of MCU have been described in the first address.

## ■ Block Erase command

Flash ROM with built-in MCU is blocking deleted.

### Format:

e, Block End (Even)address, lock bit form

### Description example:

e, CFFFE, 0 ; Lock bit effective

### Details

Deletes it by the unit of the block with MCU that ROM area is composed of the plural block.

Please set the even number value of the end address in the deleted block in the first argument.

0 or 1 is set in the lock bit form.

0: Lock bit effective

1: Lock bit invalidity

When the lock bit is invalidly executed, the area deletes it regardless of the lock or the unlock.

When the area is locked, it becomes an error if the lock bit is effectively executed.

The status of which it made an error when (Erase-error) is generated is displayed.

### Correspondence

Built-in flash ROM MCU and a kind for the block deletion.

### Attention

The error occurs when the addresses other than the correspondence block address of MCU have been described.

## ■ Read command

The data with built-in MCU ROM to written to the Hxw file.

### Format:

r, Hxw file name, beginning address, end address

### Description example:

r,SAMPLE.Hxw,C0000,FFFFF

### Details

It makes reading data from the beginning address to the end address with built-in MCU ROM by the described Hxw file name. When the file of this name exists, it is overwritten by the file.

Please describe by a British big and small character and the figure, etc. though the file name can specify an arbitrary file name. The error occurs when the character which does not defend the file name standard of MS-DOS is used.

The check sum data from the beginning address to the end address is displayed when normally ending.

### Correspondence

All models

### Attention

1. The error occurs when the addresses other than the correspondence address of MCU have been described in the beginning address and the end address.
2. If specification from the beginning address to the end address is not done by each every of the one page (256 bytes), it becomes an error for MCU of page writing.
3. It becomes an error when describing to the file extension excluding hxw.

### Reference

The personal computer can preserve It by doing the made file in UPLOAD.

## ■ Blank check command

Whether it is deleted with built-in MCU ROM is confirmed.

### Format:

b, beginning address, end address

### Description example:

b,C0000,FFFFFF

### Details

Whether data from the beginning address to the end address with built-in MCU ROM is deleted is confirmed.

When the deletion confirmation ends normally, the check sum data from the beginning address to the end address is displayed.

The address and the MCU data of which it made an error when the deletion confirmation error occurs are displayed.

### Correspondence

All models (except Qz-ROM4byte/8byte writing)

### Attention

1. The error occurs when the addresses other than the correspondence address of MCU have been described in the beginning address and the end address.
2. If specification from the beginning address to the end address is not done by each every of the one page (256 bytes), It becomes an error for MCU of page writing.

### Special notation at the time of the QzROM 4Byte/8Byte setting

This MCU setting adopts a special reading and writing method to handle it fast.

Format b, [Blank data HXW file name], [Start Address], [End Address]

Only this model writes a comma after a command, and please appoint blank data HXW file name as an argument.

Blank data

Blank data HXW file are in the folder” ¥Software¥8Bit QzROM Blank Data” of the attached CD.

For 4Byte blank data : QzBlank\_4byte.HXW

For 8Byte blank data : QzBlank\_8byte.HXW

## ■ High-speed blank command

Confirm whether built-in MCU ROM is erased fast.

### Format:

b,[Start address] [End address],1

### Description example:

b,C0000,FFFFFF,1

### Details

Confirm whether the data from Start address of built-in MCU ROM Installed to End address are erased.

Confirmation is possible faster than normal blank command so that boot program of MCU performs erased confirmation.

When elimination confirmation was finished normally, CHECK SUM = 0000 is displayed.

When elimination confirmation error occurs, an address and MCU data which became the error are displayed.

### Correspondence

M16C/63-65(MCUType choosing T=02)

R8C/3x,Lx series(MCUType is T=31 or to choose T=32)

R8C/2x series(MCUType is T=33 or to choose T=34)

### Attention

1. When it is written an address except the correspondence address of MCU in Start address and End address, error occurs.
2. Please do the appointment from Start address to End address by one page of (256 bytes) unit. An error occurs.
3. When setting of MCU Type is wrong, an error occurs.

■ All block blank check command

**Format: b**

**Description example: b**

**Details**

Confirm whether the data of all blocks of built-in MCU ROM are erased.

Confirmation is possible faster than normal blank command so that boot program of MCU performs erased confirmation.

When elimination confirmation was finished normally, CHECK SUM = 0000 is displayed.

When elimination confirmation error occurs, "00" is displayed to error address and MCU data

**Correspondence**

R8C/3x,Lx series(choose MCU Type is T=31 or T=32)

**Attention**

1. When setting of MCU Type is wrong, an error occurs.

## ■ Verify command

The data with built-in MCU ROM is collated with the content of the Hxw file.

### Format:

v, Hxw file name, beginning address, end address

### Description example:

v,SAMPLE.Hxw,C0000,FFFFFF

### Details

Collates data from the beginning address to the end address with built-in MCU ROM and the data of the Hxw file. When collation ends normally, the check sum data from the beginning address to the end address is displayed. The address, the MCU data, and the Hxw data of which it made an error when the collation error occurs are displayed.

### Correspondence

All models

### Attention

1. The error occurs when the addresses other than the range of the address of HXW file have been described in Start address and End address.
2. If specification from the beginning address to the end address is not done by each every of the one page (256 bytes), it becomes an error for MCU of page writing.



## ■ High-speed verify command

Collate check sum value of Hxw file and check sum value of built-in MCU ROM data.

### Format:

v,[Hxw file name], [start address], [end address],[CRC Sam value.]

### Description example:

v,SAMPLE.Hxw,C0000,FFFFFF,1234

### Details

Collate CRC Sam value of Hxw file with CRC Sam value from start address of built-in MCU ROM to end address.

Boot program of MCU carries out the collation of CRC Sam value. Collation is possible faster than normal verify command.

When collation is finished, CRC Sam value from start address of built-in MCU ROM to end address is displayed.

### Correspondence

M16C/63-65, M16C/30P, R32C/111 - 118(MCU Type choosing T=02)

M32C/87(MCU Type choosing T=03)

### Attention

1. The error occurs when the addresses other than the range of the address of HXW file have been described in Start address and End address.
2. Please do the appointment from Start address to End address by one page of (256 bytes) unit. An error occurs.
3. When setting of MCU Type is wrong, an error occurs.

## ■ Program command

The content of the Hxw file is written with built-in MCU ROM.

### Format:

p, Hxw file name, beginning address, end address, lock bit form

### Description example:

p, SAMPLE.Hxw, C0000, FFFFF, 0 ; Lock bit effective (For necessary MCU of the description).

P, SAMPLE.HXW, C0000, FFFFF, 1 ; Lock bit invalidity (For necessary MCU of the description).

### Details

The Hxw data from the beginning address to the end address is written with built-in MCU ROM. When writing ends normally, the check sum data from the beginning address to the end address is displayed.

The address, the MCU data, and the Hxw data of which it made an error when the writing error occurs are displayed.

### Lock bit form:

It needs kind for the lock bit. Besides, please omit it.

0 or 1 is set in the set lock bit form.

0: Lock bit effective

1: Lock bit invalidity

When it is an area where the block is locked, and all data in the page which tries to be written is deleted, it is possible to write it by invalidly setting the lock bit.

If the locked area is effectively set biting the lock and written, it becomes an error.

It becomes an error if it writes on the page not deleted even if not locked.

### Correspondence

All models

### Attention

1. The error occurs when the addresses other than the range of the address of the HXW file have been described in the beginning address and the end address.
2. If specification from the beginning address to the end address is not done by each every of the one page (256 bytes), It becomes an error for MCU of page writing.

## ■ Lock bit command

The lock bit at every the block with built-in MCU ROM can be set in the lock, and the thing to prevent writing etc. done by the mis-deletion and the mistake be done.

### Format:

k,Lock block end(Even) address

### Description example:

k CFFFE ; When the end address is CFFFF

### Details

Please specify the even number value of the end address in the locked block by the argument.

### Correspondence

Built-in flash ROM MCU and a kind for the lock bit.

### Attention

The error occurs when described mistake the block end address where MCU corresponds.

## ■ ID collation command

The ID code protect function is released.

### Format:

I, ID area first address, ID code, ID code form

### Description example:

i,FFFDE,SUISEI,0 ; input by ASCII codes

I, FFFDE, 01020304050607, 1 ; input by HEX codes

### Details

The ID code protect function is released before each command is executed and the access of MCU is enabled.

ID code form: 0 or 1 is set in the ID collation form set by the ID collation command.

0: input by ASCII codes

1: input by HEX codes

### Correspondence

Only for the ID code protecting MCU.

### Attention

In ID area first address where MCU corresponds, a predetermined value exists by MCU.

The error occurs when described by mistake.

### Reference:

Because deleted MCU is not necessary, and this command is disregarded when not protecting, We will recommend the thing that this command line is inserted before each command is executed to MCU equipped with the ID code collation function.

The reason is to enter the state that the command at all the following is not accepted if the power supply of MCU is not turned off once if failing in the ID code protection release because of MCU in which ID is written.

## ■ MCU set command

Command by which target MCU is specified.

### Format:

T=x , T=xx ;x disregard the effective following from the head to 2 digits.

### Description example:

T=7 ; M38000 NOR is specified for target MCU.

T=04 ;R8C/10 and 12 groups are specified for target MCU.

T=0 :It becomes an error.

T=40 :It becomes an error.

### Details

It uses when the MCU setting of the RC is not used, and it specifies originally in the script.

The state of the MCU setting is displayed when A key is pushed with the menu displayed, and **describe to the head of the PBT file**, please after scrolling to the MCU group which uses it, and confirming No. of the left end.

When PBT is executed, target MCU name is displayed for two seconds when this command is used.

### Reference:

When this command is not specified in the PBT file, the MCU setting of the main body by the point memorized in the memory is read in the MCU setting and the memory execution of the main body and it is used.

## Correspondence

It becomes an error for current MCU if it specifies by (1-11) excluding this.

01: M16C/62,80 Group	
02: M16C/62P Group	
03: M32C/8x Group	
04: R8C/10-13 Group	
05: R8C/14-1B Group (1 Line)	
06: M3775xF Group	
07: M38000 NOR	
08: M38000 N.D.	(notes: An exclusive interface board is required.)
09: 720 QzROM	(notes: An exclusive interface board is required.)
10: 4500 QzROM	(notes: An exclusive interface board is required.)
11: 7544 QzROM	(notes: An exclusive interface board is required.)
12: 7545 QzROM	(notes: An exclusive interface board is required.)
13: 7546 QzROM	(notes: An exclusive interface board is required.)
14: 7547-9 QzROM	(notes: An exclusive interface board is required.)
15: 385x QzROM	(notes: An exclusive interface board is required.)
16: 38238-A QzROM	(notes: An exclusive interface board is required.)
17: 38Dx Qz 8Byte	(notes: An exclusive interface board is required.)
18: 7542 Flash	(notes: An exclusive interface board is required.)
19: Reserved	(Reservation domain)
20: Reserved	(Reservation domain.)
21: Reserved	(Reservation domain.)
22: Reserved	(Reservation domain.)
23: Reserved	(Reservation domain.)
24: 38234-5 QzROM	(notes: An exclusive interface board is required.)
25: 7544 QzROM 4Byte	(notes: An exclusive interface board is required.)
26: 7545-7 Qz 8Byte	(notes: An exclusive interface board is required.)
27: 385x QzROM 8Byte	(notes: An exclusive interface board is required.)
28: 38238-A Qz 8Byte	(notes: An exclusive interface board is required.)
29: 38234-5 Qz 8Byte	(notes: An exclusive interface board is required.)
30: 7548-9 Qz 4Byte	(notes: An exclusive interface board is required.)
31: R8C3xLx(Type1)	(notes: Use it when it does not work in T=32.)
32: R8C3xLx(Type2)	
33.R8C/2x(Type1)	(notes: Read device list about the correspondence group.)
34.R8C/2x(Type2)	(notes: Read device list about the correspondence group.)
35.R8C/2x(Type3)	(notes: Read device list about the correspondence group.)

**Attention**

\*If the command is executed mistake target MCU setting, an unexpected error occurs, and setting is noted enough in the worst case because target MCU is occasionally destroyed.

\* Error occuer when it appoint Reserved (Reservation domain)

\* Devices list is in the following folder of the attached CD.

¥Support device list

Or please refer to the following URL.

[http://www.suisei.co.jp/download\\_e/devicelist\\_e.html](http://www.suisei.co.jp/download_e/devicelist_e.html)

\* **At the time of upgrading of the firmware,A turn to form a line is changed.**

## ■ Read protecting command

It is a protect command in target MCU. (Qz-ROM only!)

### Format:

Y ; Y can use y of the small letter.

### Description example:

Y ; Protecting is multiplied by MCU.

y ; Protecting is multiplied by MCU.

Y=0 ; It becomes an error. (The argument cannot be used)

y= ; error. (ditto)

### Details

Protecting is multiplied by target MCU, and reading, verifying of data thereafter, and the access such as writing are prohibited.

After the P command and the V command, when this command is executed at the end, a checksum is displayed.

### Note:

When this command is executed independently, a checksum does not display.

### Correspondence

It is the undermentioned three kinds MCU to be able to execute this protecting with MCU which corresponds with RC now.

428x Vdd:3.3V ; 4Bit QG-MCU

450x Vdd:4.5V

7544 QzROM ; 8Bit QG-MCU

7545 QzROM

7546 QzROM

7547 QzROM

385x QzROM

3823 QzROM

### Description example

t=9 ; An 428x type is specified to be Target MCU.

y ;to protect

### Attention

When you execute this command, you thereafter cannot access MCU.

We recommend being executed with PBT only for a single protecting after you deliberately do the operation check of the target substrate.



## ■ Wait command

Command which stops temporarily while script is operating.

### Format:

W=x and W=xx ; x disregard the following of effective (0-99 seconds) from the head to 2 digits.  
 ; After second of the value of x number passes, the command since the line is executed.  
 ; When the value of x is 0, it stops until any key input.

### Description example:

W=7 ; The script execution is stopped during the 7 second.  
 w=30 ; The script execution is stopped during the 30 second.  
 W=0 ; The script execution is stopped until any key input.

### Details

When the wait command is executed, MCU reset of the target substrate is released.

MCU can operate with the cable for writing connected.

The warning sound ((\*pipipi\*)) is generated once while stopping the key input waiting at each passage of five minutes.

The following operations are discontinued when B key is released for the key input waiting pushing, and release keys other than B key, please pushing when you continue the command since the wait command. This command can be used times how many while filing one PBT.

### Use example:

1. When the write two or more execution programs is frequently done to the shipment inspection in the production line, it uses it. A necessary setting is done by the target substrate's writing the target substrate once with the software for setting, stopping temporarily, and operating. Afterwards, when the special software made from the key input for a final following product shipments is written and it ends.
2. When protecting writing is done in MCU which can be protected after check of operation
3. The operation check can be done by two or more set of software's operating without removing the cable for the simple debugging and the demonstration.

### Attention

Writing, and after writing ends, target MCU reset does not release and end (writer) for safety as for originally and on board (The target substrate does not operate). It is necessary to turn on the power supply to the target substrate after the power supply is turned off, and connected cable for writing etc. are detached and do the operation check etc. When reset is released after writing, It might influence the MCU operation in the circuit with which the cable for writing is connected.

The problem on safety might occur in this command according to the circuit composition of the target substrate, and this respect is had to be examined enough, and it uses it to the last in the responsibility of the user externals.

Because any damage occurs because of use, our company cannot take the responsibility.

In addition, it is not the one to secure the MCU operation when reset is released.

### Example of using wait command

The example of the PBT file reference when the wait command is used is shown.

Example of reference for shipment inspection

#### State of operation Kensa.pbt

T=1	target MCU setting (M16C/62,80Group)
I, fffdf, 1	ID setting
e	Target MCU deletion
b, fc0000, fffff	MCU blank check
p, test.hxw, fc0000, fffff, 1	Program writing it and one adjustment
v, test.hxw, fc0000, fffff	verify check
w=0	The target substrate is adjusted until the key is input.
I, fffdf, 1	ID setting
e	Target MCU deletion
b, fc0000, fffff	MCU blank check
p, shukka.hxw, fc0000, fffff, 1	Program writing it and one shipment
v, shipped.hxw, fc0000, fffff	verify check
w=5	The operation of the target substrate is confirmed during the 5 second.
End	

Example of reference for demonstration

#### State of operation demo.pbt

T=1	target MCU setting (M16C/62,80Group)
I, fffdf, 1	ID setting
e	Target MCU deletion
p, demo1.hxw, fc0000, fffff, 1	Demonstration one program writing
w=60	The target substrate demonstrates during the 1 minute 1
I, fffdf, 1	ID setting
e	Target MCU deletion
p, demo2.hxw, fc0000, fffff, 1	Demonstration two program writing
w=60	The target substrate demonstrates during the 1 minute 2.
I, fffdf, 1	ID setting
e	Target MCU deletion
p, demo3.hxw, fc0000, fffff, 1	Demonstration three program writing
w=60	The target substrate demonstrates during the 1 minute 3.
End	

## ■ VDD Supply

The command which performs VDD (+5V) supply at Target MCU automatically.

### Format:

X=1 ; X can use x of a small letter.

### Mention example

: X=1 ; Vdd is supplied to MCU.  
 : x=1 ; Vdd is supplied to MCU.  
 : X ; It is ignored in an error.(There is no argument)  
 : x ; It is ignored in an error.(There is no argument)

### Details

VDD (+5V) is supplied to Target MCU, and they are read-out of data, verification, writing, etc. Access is made possible.

Although it becomes the check screen of whether to supply when a command is sent to MCU in which power supply supply is possible and power supply supply is not carried out at MCU, a check can be skipped using this command.

### Correspondence

It is MCU which corresponds by RC now, and it is the seven following kind MCU that VDD supply can be performed.

This command is disregarded when MCU(s) other than this are specified.

- 1: M16C/62,80
- 2: M16C/62P
- 3: M32C/8x
- 4: R8C/10,12
- 5: R8C/14,15
- 6: M3775xF
- 7: M3803NOR

### Note:

Since it is only +5V, that VDD supply can be carried out at a target board has a possibility of damaging MCU, if it is used for MCU of the other VDD voltage.

Please use it after affirmation enough.

Although the current capacity which can be supplied is possible to about 300mA, there is much inrush current of a substrate. A case becomes an error, and when the worst, the RC itself will reset.

It is a manual when this command is used. Please test enough, and only when possible, use it.

## ■ Baudrate set

The command which changes the baud rate to access when Targets MCU is **RC8C14/15**.

### Format:

S=0      9600 Bps                    ; 'S' can also use s of a small letter.  
 S=1      19200 Bps                  ; **The regulation value when not specifying.**  
 S=2      38400 Bps  
 S=3      57600 Bps  
 S=4      115200 Bps  
 S=5      230400 Bps  
 S=6      460800 Bps

### Description example:

S=3                                  ; 57600 Bps is used for access with MCU.  
 S=7                                  ; Error (the argument is over specification within the limits.)  
 S                                        : Error (no argument)

### Details

If RC8C14/15 are specified to be Targets MCU, they are read-out of data, verification, writing, etc. It accesses by communication of a regulation value (19200Bps) at the time of access.

### Correspondence

It is MCU which corresponds by RC now, and following MCU can perform a baud rate setup.

This command becomes an error when MCU(s) other than this are specified.

### RC8C14/15

### Attention

- When you use the maximum high speed of S= 4, please use what can generate the most exact possible baud rate for the MCU clock oscillation child carried in the target board.
- Since an error occurs in MCU access and it becomes a device error (4184) when affinity with the MCU clock oscillation child carried is bad, please use transmission speed, setting it up low.
- The baud rate of a used setup is used until it will perform a MCU setup which is different by MCU setup or will turn off RC main part, once it is set up.
- When the MCU set command is being used, please indicate after carrying out a MCU set.

## ■ CheckSum set command

Write to a divided domain in succession and add up check sum value when it performed Verify.

Format: a,[mode],[Check sum value]

Mode:01 addition start 00: addition end

Check sum value: entry a value to add in a result value (write 0 eight columns if not necessary)

Example: a, 01,00000000 ; Start addition of the check sum value  
 a, 00.00000000 ; Stop addition of the check sum value  
 a, 01,000000FF ; Start addition (select FFh in an initial value)

The details

Write a divided domain to the ROM in MCU successively, and display the result that add check sum value when perform Verify.

Use example:

a, 01,00000000 ; Start add of check sum value (Initial value 0)  
 p,xxxx.hxw,f000,ffff,1 ; Display the value that added an initial value and check sum between f000,ffff(A)  
 p,xxxx.hxw,fc0000,ffffff,1 ; Display the value that added check sum between above (A) and fc0000,ffffff  
 a, 01,00000000 ; Start addition of the check sum value(Initial value 0)  
 v,xxxx.hxw,f000,ffff ; Display the value that is added an initial value and check sum between f000,ffff  
 to(B)  
 v,xxxx.hxw,fc0000,ffffff ; Display the value that added check sum between above (B) and fc0000,ffffff

Note: in this use example, it does not use an addition stop. (Initial value is selected by an addition start)

### Correspondence kind

All models

#### Note

Mode is necessary for two-digit number, Check sum value is necessary 8 digit number.

When it stop addition, Check sum of every command is displayed without adding it up after it.

**■Screen display when PBT file is executed**

Note: It is necessary, and input to usually push the return key with the text editing software though < cr><lf > of each final command is not displayed.

TAB(09H) code and space (20H) are skipped.

The RC display when the undermentioned command is described and executed is shown in the PBT file as an example.

**For example m16c80 of reference zzzz.pbt**

i,ffffdf,,1<cr><lf>	ID setting
e ,1 < cr><lf>	target MCU deletion
b,fc0000,ffffff<cr><lf>	blank check
p, yyyy.hxw, fc0000, ffffff, 1 < cr><lf>	program writing
v,yyyy.hxw,fc0000,ffffff<cr><lf>	verify check

**LCD display executing**

[ ■■■■■■■■ ]  
SET TO MCU ID!

[ ■■■■■■ ]  
MCU ERASING NOW!

[ ■■■■■■ ]  
BLANK CHECKING NOW!

[ ■■■■ 0000 ]  
DATA PROGRAMING NOW!

[ ■■■■ xxxx ]  
DATA VERIFYING NOW!

CHECK SUM = xxxx  
V COMMAND OK!

zzzz. pbt  
V COMMAND OK!

**Content**

i,ffffdf,,1 State of execution  
ID set execution

e,,1 State of execution  
TargetMCU Deletion execution

b,fc0000,ffffff State of execution  
Check execution of blank

p,yyyy.hxw,fc0000,ffffff,1 State of execution  
program write execution

v,yyyy.hxw,fc0000,ffffffState of execution  
The data comparison check is executed.

The execution result and the execution file name are displayed  
the switch.

Content of the final execution

## Screen display (with note) when PBT file is executed

It is possible to make it by adding the note to the PBT file.

Please write the ‘;’ semicolon before the note.

The note cannot use the control code only by the Ascii text code of the normal-width character.

Because comma (2CH) noting the TAB(09H) code is skipped, it is not displayed.

The note is displayed from the head of the line on the LCD screen for two seconds while executing PBT at the note.

It displays as a note even if the execution command is described following the note and it does not execute it.

The note which continues after the execution command is not displayed on the LCD screen by the note when editing it.

The number of note characters which can be displayed is not displayed any more by 40 characters of 20 character two line except the first semicolon. (Skip it)

The character which can be displayed is only an alphanumeric character of normal-width and a katakana.

The display can be divided into two lines by using the character ‘,’ comma.

### Use example

1. When it keeps pushing B key while displaying it if the thing which is confirmed if the content etc. of execution are described at the head of the PBT file by the note and executed can be done, and it is wrong, the thing to cancel execution is possible.
2. The file which you made in the past forgets why you execute these.
3. The thing used while confirming the operation when being not accustomed to use it uses it can be done.

The RC display when the undermentioned command is continuously executed is shown in next page as an example.

### For example m16c80 of reference of content of zzzz.pbt

; yyyy.hxw is written to target substrate. < cr><lf >	<b>note</b>
;ID-Check,Start<cr><lf>	<b>note</b>
i,ffffdf,,1;ID SET<cr><lf>	ID setting + <b>note</b>
; Erase Start<cr><lf >	<b>note</b>
e ,,1; deletion < cr><lf >	target MCU deletion + <b>note</b>
; Blank Check Start	<b>note</b>
b,fc0000,ffffff<cr><lf>	blank check
; Program is written to target substrate.< cr><lf >	<b>note</b>
p, yyyy.hxw, fc0000, ffffff, and 1 < cr><lf>	program writing
; The write data is compared.< cr><lf >	<b>note</b>
v,yyyy.hxw,fc0000,ffffff<cr><lf>	Verify check
; Writing was normally ended.< cr><lf >	<b>note</b>

### LCD display executing

yyyy.hxw is written  
to target substrate.

ID-Check  
Start

[■■■■■■■■■■] ]  
SET TO MCU ID!

Erase Start

[■■■■■■] ]  
MCU ERASING NOW!

Blank Check Start

[■■■■■■] ]  
BLANK CHECKING NOW!

Program is written t  
o target substrate.

[■■■■ 0000] ]  
DATA PROGRAMING NOW!

The written data is  
compared.

[■■■■ xxxx] ]  
DATA VERIFYING NOW!

Writing was normally  
ended.

CHECK SUM = xxxx  
V COMMAND OK!

zzzz.pbt  
V COMMAND OK!

### Content

Displays since 20 digits in the next line.  
Display for two seconds

displays since the comma in the next line.  
Display for two seconds

i,ffffdf,,1 (ID SET is not displayed.)  
ID set execution

note  
Display for two seconds

e,,1 (The deletion is not displayed.)  
TargetMCU Deletion execution

note  
Display for two seconds

b,fc0000,ffffff State of execution  
Check execution of blank

Displays since 20 digits in the next line.  
Display for two seconds

p,yyyy.hxw,fc0000,ffffff,1 State of execution  
program write execution

displays since the comma in the next line.  
Display for two seconds

v,yyyy.hxw,fc0000,ffffff State of execution  
The data comparison check is executed.

displays since the comma in the next line.  
Display for two seconds

The execution result and the execution file name are displayed  
the switch.

Content of the final execution



## Screen display when error occurs

The processing thereafter is discontinued when the error occurs while executing the PBT file and it shifts to the error display.

The error display returns to the screen for 60 seconds, and there is meanwhile a key input of something.

It is generated while executing the command for target MCU, and the example of a typical error generation screen is shown.

### Error display

DEVICE ERROR x COMMAND ERROR!	ERROR CODE = 4100 x COMMAND ERROR!
----------------------------------	---------------------------------------

↔ switch display every second. x is a command name

ID NO CHECK ERROR x COMMAND ERROR!	ERROR CODE = 8300 x COMMAND ERROR!
---------------------------------------	---------------------------------------

↔ switch display every second. x is a command name

TYPE ERROR x COMMAND ERROR!	ERROR CODE = 1200 x COMMAND ERROR!
--------------------------------	---------------------------------------

↔ switch display every second. x is a command name

PARAMETER ERROR x COMMAND ERROR!	ERROR CODE = 2000 x COMMAND ERROR!
-------------------------------------	---------------------------------------

↔ switch display every second. x is a command name

BLANK ERROR xxxxx yy	ERROR CODE = 5200 xxxxx yy
-------------------------	-------------------------------

↔ switch display every second.  
xxxxx=MCU address yy=MCU data

PROGRAM ERROR xxxxx yy zz	ERROR CODE = 5000 xxxxx yy zz
------------------------------	----------------------------------

↔ switch display every second.  
xxxxx=MCU address yy=MCU data zz=HXW data

### Generation factor etc.

When target MCU specification without power supply of defective connection of RC and target MCU substrate and MCU substrates has been mistaken

When data has already been written in MCU for which ID collation is necessary and command is sent without collating ID after power supply is turned on

When there is command which cannot be executed because command name which had been described to PBT file renewed abnormality and RC in old version

The addressing described to the PBT file following the command name and the value of the option etc. are abnormal.

MCU not deleted was checked at the blank check.

### PROGRAM and VERIFY

Different data was found the data of MCU in data with compared HXW files.

Only the error code is (5100) at Verify.

Please refer to the error code table about the display when the error occurs the other.

## About the change in the menu name

The name of the undermentioned gray part displayed in the menu item (title) can be changed.

When the menu name is changed, the katakana display mode uses the one that the menu was changed.

Item	Predetermined display name	Folder predetermined link ahead	Note
1	FILES	ROOT	
2	PROGRAM	DOWNLOAD	
3	MCU SET	MCU_TYPE	
4	USER	USER	
5	FIRM UPDATE	FIRMWARE	

## Operation key when editing

Display	Name	Operation
↑	UP	Change of character at cursor position (direction of return)
↓	DOWN	The ditto character change (It is willingly a direction).
→	RIGHT	The changed character position selection (The character can be added right from the final character by one character).
←	LEFT	The ditto character position selection (Enter the edit mode).
A	A	Deletion of character of capital letter, small letter change/menu names.
B	B	The menu name change is canceled.
S	S	The change in the menu name is fixed and made.

## Edit of menu name

1. If B key is pushed while pushing the UP key with the menu displayed, it becomes the selection mode of the menu file. When ← sign is displayed at the right of the menu name, it is a file with data.
2. The menu name cannot be edited by this entering the state that MENU01 is displayed in the state of the first stage, and being used when this machine is initial returned. (DOWN) MENU02 without data is displayed when the key is pushed, and read, please pushing S key.
3. 1 again . it is displayed when operating it as 【MEMORY FILE CREATED】 and returns to the menu.
4. The ←(LEFT) key becomes effective if you operate 1. again, and it is possible to change to the edit mode.
5. Item number and delimitation of left end of menu name (colon) \*\*\* It is not possible <wearing> to edit it. It is necessary, and one character or more can be the highest, and be used for the rest up to 20 characters as a menu name including the item number and the delimitation.
6. The item which need not be edited moves to the following item without changing even if it changes on the way when B key is pushed. (Please end pushing all B keys when it enters this edit mode by mistake)
7. The changed name is set when S key is pushed and it moves to the following item.
8. The edit mode is ended if setting all items ends and the change is displayed in the menu.
9. Whenever A key is pushed by a British big and small character, the sign, and the katakana while displaying the alphabetic character, the character kind which can be used can switch the capital letter and the small letter.
10. When the number of characters is increased, the thing added to the tail of the character string by one character can be done. →(RIGHT) The cursor moves next to the character string tail when the key is left pushed and it stops. Please change until predetermined character's (A) entering the cursor position, and becoming a hoped character if the ↑ (UP) key or the (DOWN) key is pushed at this position.
11. When the number of characters is decreased, the thing deleted from the tail of the character string by one character can be done. The cursor is moved next to the character string tail with the →(RIGHT) key pushed thoroughly to the increased time. One character is deleted from the tail by the thing to push the untouched A key.
12. B key (cancellation) and S key (make) are possible while editing it which.
13. The menu being read now can copy the content of the menu by selecting other menu files after the display is switched to WRITE pushing the →(RIGHT) key and pushing S key.
14. It is 1 always to return it to a regulated state of the menu (The link is included). When it operates, and MENU01 is read again, it is possible to return it.
15. The state of the menu file read when the first power supply is turned on is deleted when the CF card is exchanged, and it changes to a predetermined menu. Please read again when you use the menu memorized on the exchanged CF card.

## About the change linking corresponding to the menu name ahead

The thing that the user freely changes the folder which opens directly from the menu can be done.

Because MENU01 is read in the state of the first stage, it is not possible to change. Please read beforehand excluding MENU01.

The link of items 1(CF ROOT) cannot be changed to the file operation because of indispensability.

The folder can be changed the link the undermentioned gray part ahead.

Item	Predetermined menu name	Folder predetermined link ahead	Note
1	FILES	CF ROOT	Can not be changed the link ahead.
2	PROGRAM	DOWNLOAD	
3	MCU SET	MCU_TYPE	
4	USER	USER	
5	FIRM UPDATE	FIRMWARE	Impossible of a change

## Change in link

- Menu item 1: If it opens from FILES, the cursor is matched to the target folder displayed by < and >, and the UP key is pushed while pushing B key, it becomes the change mode of the link.
- When these folders are linked with any of the menu, S key is pushed because it is displayed as 【LINK TO MENU?】. To cancel, when B key is pushed.
- S key is pushed when linking with the menu because the menu names linked with steps after LCD is displayed, and it is displayed in the lower as 【LINK THIS MENU?】.
- When the ↑ UP/DOWN key is pushed, an existing menu item is sequentially displayed when linking with other menu positions. It returns to the origin with the UP/DOWN key when passing.
- When the link change is canceled, it is possible to cancel by pushing B key.
- The link of the menu files is memorized in read menu file (MENUxx). The thing to change linking ahead at a time by the change of the reading menu of the menu file can be done by making two or more menu files, changing linked folders, and saving.
- The state of the menu file read when the first power supply is turned on to prevent the malfunction when the CF card is exchanged is deleted, and it changes to a predetermined menu. Please try to select again when you use the menu memorized on the exchanged CF card and read.

## FILES operation key

Display	Name	Operation
↑	UP	The folders and the files are scrolled up. When editing character is changed.
↓	DOWN	The folders and the files are scrolled down. When editing character is changed.
→	RIGHT	The folder is opened.
←	LEFT	The folder is closed and it returns to former folder.
A	A	The file and the folder which you have selected are changed to the deleted mode.
B	B	Another who uses it when canceling when selecting it
S	S	Start, file dump of execution file, and permission and others when selecting it

### File operation and display

- The folder is enclosed with the '<' character and the '>' character and displayed by the LCD display.
- The folder is opened by pushing the →(RIGHT) key.
- Please select a necessary folder /file with the ↑ UP/↓ DOWN key.
- It returns to former folder position when the ←(LEFT) key is pushed.
- It switches to the display of 【A=MEMORY B=NO S=YES】 every 【EXECUTE THIS FILE?】 and second when S key is pushed when the selected file is execution file (pbt) and it displays it.
- The execution file (pbt) is executed, and it discontinues and it returns to former selection position when B key is pushed. When S key is pushed becoming the memory storage mode if A key is pushed at this time.
- It is done to display the content of the file the dump in the Ascii text when S key is pushed, except when it is execution file (pbt) of the selected file.
- When the selected file is (hxw), the check sum display, the text dump/edits can be selected.
- When the HXW file is opened from FILES, the HXW file edit mode can be selected.
- The display is discontinued when B key is pushed and it returns to former selection position when the text dump is executed.
- To delete the selected file, it switches to the display of 【S=YES/B=NO】 every 【DELETE THIS FILE?】 and second when A key is pushed and it displays it. 【DELETING NOW....】 is displayed when S key is pushed at this time, the file is deleted. When B key is pushed, 【 CANCEL 】 is displayed, and it discontinues and it returns to former selection position.
- Nothing is displayed even if the file is selected and A key is pushed and it is possible to enter this deletion mode if the purpose is to access the folder directly, and the folder is developed on the menu by the thing to push return →(RIGHT) key to the display of FILES at no reaction.
- It is displayed when the foldername of <> is selected to delete all files included in the folder and the folder and A key is pushed as 【DELETE THIS FOLDER?】 and the operation is the same as the file deletion.
- When B key and A key are pushed at the same time to the selection of the file, all files in the folder can be deleted. This display is 【FILES ALL DELETE?】 . (Please the file deletion of A key is given priority and push B key previously) The folder is not deleted by deleting only the file in the folder.
- The Last Modified date/time, number of bytes and attributes are displayed when B key is pushed when the file is selected.
- The file at the cursor position can be upload to the personal computer.

### Example of operating menu

The directory of USER is used as an operation example.

1. The ↓ (DOWN) key is pushed on the menu and 4. The cursor is matched to USER and the →(RIGHT) key is pushed.
2. The file is opened and the display as for this folder because of emptiness as **【-FILE NOT FOUND-】** , and the display is extinguished.
3. Program (hwx) and execution file (pbt) for target MCU is down-loaded respectively by using EFP-RC of tool EFP-RC Ver.1.00.00 on the personal computer.
4. It writes in the target by selecting arbitrary execution file (PBT) in the folder and starting, and verify etc. are executed.

### Example of operating file

The directory of USER is used as an operation example.

1. 1 in the menu:The cursor is matched to FILES, the →(RIGHT) key is pushed, and it makes it to the file operation mode.
2. The first display position is on the route of the CF card. The folder is enclosed with the ‘<’ character and the ‘>’ character.
3. **It is displayed if this folder is opened when the cursor is matched to < USER > pushing the ↓ (DOWN) key and the →(RIGHT) key is pushed and there is a file/a folder.**
4. It discontinues when B key is pushed, and it returns to former file display when S key is canceled when deleting it because it is displayed to delete want to forward a file not necessary, the deletion, and the file, etc. not needed when the cursor is matched to the file name and A key is pushed as **【DELETE THIS FILE?】** .
5. When the cursor is matched to not the file but the folder, and A key is pushed, it is displayed as **【DELETE THIS FOLDER?】** , so it deletes, and empty capacity after it deletes it is displayed the display of the folder.
6. It discontinues when B key is pushed, and it returns to former file display when S key is canceled when deleting it because it is displayed to delete only all files when it is too a lot of etc to delete the file in a certain folder one by one when the cursor is matched to either of file, and B key and A key are pushed at the same time as **【FILES ALL DELETE?】** . When S key is pushed, the folder in this folder is left, and only all files are deleted.
7. The Last Modified date/time ,number of bytes and attributes are displayed when B key is pushed when the file is selected.
8. It somewhat occasionally takes time until the deletion completion is done when a mass folder is deleted by the complex composition which is dragged from the personal computer with a card reader etc. and written, and the power supply is not turned off until empty capacity is displayed after the deletion is completed.
9. As for the file which has been selected with the cursor, the thing up-loaded to the personal computer can be done.

## About the folder making function

The folder making function can be used because of the sort of file management.

### Foldername automatic making

1. The folder of FLDR\_XXX which simply applies Continuing number (XXX) of the treble is made and 255 folder names can be made automatically in maximums in each folder.
2. The folder of FLDR\_XXX which applies Continuing number of the treble similarly can be made by entering in the folder of the FLDR\_XXX. (The hierarchy of the folder is basically infinity on software)
3. 'XXX' of this FLDR\_XXX is sequentially allotted from 001 to 255 by the decimal number.
4. The following number is allocated and it is displayed when whether FLDR\_XXX of this name exists in the folder when entering the making mode is retrieved, and it exists.
5. It is not possible to make by displaying the error when it tries to make the folder of 255 or more from this making function, and, in this case, change the file name by the edit function, please.
6. It retrieves from a small number when trying to make it in the same folder next time if the folder of this FLDR\_XXX is deleted, the number which has become empty is allocated sequentially again, and it displays it.
7. When S key is pushed, it is made when making it by this simple folder name.

### Foldername edit function

#### Operation key when editing

Display	Name	Operation
↑	UP	Change of character at cursor position (direction of return)
↓	DOWN	The ditto character change (It is willingly a direction).
→	RIGHT	The changed character position selection.
←	LEFT	Ditto character position selection.
A	A	Deletion of character of capital letter, small letter change/folder names.
B	B	The folder making is canceled.
S	S	The folder name is fixed and made.

1. The folder name can be edited by doing the undermentioned operation with the folder name of simple folder name FLDR\_001 etc. is displayed, and the cursor of \_ (underline) set in the left end of the line.
2. →(RIGHT) The cursor is moved to the character which wants to change with/←(LEFT) key.
3. The ↑ (UP) key and the ↓ (DOWN) key are used to change the character at the cursor position.
4. When the character at the cursor position is an alphabetic character, the capital letters and small letters conversion can be alternately done with A key.
5. When the cursor is moved with the →(RIGHT) key until the blank on a right edge of the character, and the ↑ (UP) key or the ↓ (DOWN) key is pushed, the character of A is inserted as an initial value when the number of characters is increased.
6. The final character of the character is deleted when the cursor is moved to a right edge of the character similarly with the →(RIGHT) key, and A key is pushed and one cursor moves left when the number of characters is decreased.
7. Push **S** key, and it finishes editing, and a folder is made.

### Operation when folder is made

1. The foldername made for steps after it is displayed that B key and S key are pushed at the same time in an arbitrary folder when making it for the first time is displayed by the Continuing number making function as **【FLDR\_001】** .
2. Blinking the cursor stops, shape is changed to \_ (underline), and it is displayed in the left end.
3. **【MAKE THIS FOLDER?】** and the display of **【S=YES/B=NO】** switch to the display of the the lower every second, it is displayed, and it becomes an instruction waiting.
4. It is displayed when S key is pushed as **【 FOLDER CREATED 】** , and is displayed **< FLDR\_001 >**.
5. When B key is pushed, **【 CANCEL 】** is displayed, and making is discontinued and it returns to former display.
6. When the file composition that making is selected and there is no empty area in the CF card cannot be made by some circumstances such as abnormality, it is displayed as **【 ERROR NOT CREATED 】** and ends.
7. When the foldername is edited, the cursor is moved to the character which wants to be edited with → (RIGHT)/the (LEFT) key, and the character is changed with ↑ (UP) key and ↓ (DOWN) key.
8. The character which can be used by the edit function changes only by \_ (under bar), alphanumeric character (0-9), and a British big and small character in the ↓ (DOWN) key in this order, and the ↑ (UP) key becomes the opposite.
9. Whenever A key is pushed, the capital letter and the small letter change are alternately done when the character at the cursor position is an alphabetic character.
10. The number of characters of foldernames increases and decreases by one character or more and 18 characters or less by the following methods.
11. When the number of characters is increased, the thing added to the tail of the character string by one character can be done. →(RIGHT) The cursor moves next to the character string tail when the key is left pushed and it stops. Predetermined character (A) enters the cursor position, and when the ↑ (UP) key or the (DOWN) key is pushed at this position, it changes with ↑ (UP)/the (DOWN) key until becoming a hoped character.
12. When the number of characters is decreased, the thing deleted from the tail of the character string by one character can be done. The cursor is moved next to the character string tail with the →(RIGHT) key pushed thoroughly to the increased time. One character is deleted from the character string tail by the thing to push the untouched A key.
13. B key (cancellation) and S key (make) are possible while editing it which.
14. It returns to the edit screen again after the error **【 ERROR EXIST NAME 】** is displayed in the place where making is selected pushing S key when the folder of this name has already existed. (The capital letter and the small letter on the standard of Windows are processed as the same character)
15. When the small letter is used for the foldername by as much as one character, it does not depend on the number of characters and it is preserved as a long file name.
16. The greatest 18 sentences number of characters is limited to be hard to come to distinguish it on display of RC. Even if it is made the folder name with the number of the letters more than this, it work normally.



## HXW file edit mode

■ The data written in target MCU is changed. Please be carefully.

Only when the HXW file which develops from FILES is selected, and EDIT is chosen, it becomes this mode.

After LCD is displayed, the first address of the HXW file is displayed in steps. The data of the address is displayed in the the lower, and the cursor has blinked by the most significant digit of the address which can be changed.

Example of display (for M16C80)

Set Add. : FC0000
Set Data: FF

### Operation key

Display	Name	Operation
↑	UP	Address at cursor position and change of data value (direction of return).
↓	DOWN	The ditto (It is willingly a direction).
→	RIGHT	Movement of cursor digit position.
←	LEFT	Ditto.
A	A	The position of the cursor is switched alternately <the address part and the data part>.
B	B	The edit is ended.
S	S	+1 is done and the edit address is displayed.

Data from the start address of the edited HXW file to the end address can be edited.

When the address of the data which wants to be edited is changed, data follows to the changed address when it moves to the digit position of the address which wants to change with ←(LEFT)/→(RIGHT) key and the address is changed with the ↑ UP/ ↓ DOWN key.

The cursor position moves to the high rank from the address to the data position when A key is pushed, and the data value is changed with the ↑ UP/ ↓ DOWN key specifying the digit position of the data which wants to change with ←(LEFT)/→(RIGHT) key.

Please push A key again to return the cursor to the address position.

+1 address is done, and S key is displayed to the final address of the file continuously.

The ↑ UP key when there is a cursor in the low rank digit of the address is continuously displayed to the first address.

The file edit is ended with B key.

### Attention

1. When the value is changed with the ↑ UP/DOWN key, data is changed when there is a cursor in the data position. There must not be means by which it returns it enough as long as neither the address nor the data before the user rewrites it are remembered.
2. In MCU of page writing, it is necessary to make data by switching off page district.
3. The edit to an invalid address and data is limited in 4bits MCU.

## Display message list

Message	State
EFP-RC Ver.4.02. xx SUISEI DENSHI SYSTEM	RC initialization completion.
SELECTED MCU-TYPE	It entered target MCU change mode.
SET TO MCU TYPE!	MCU was changed by T command.
FIRMWARE UPDATING!	Improvement date inside of firmware.
DATA PROGRAMING NOW!	Target MCU program command is being executed.
DATA READING NOW!	Target MCU data read command is being executed.
DATA VERIFYING NOW!	Target MCU and HXW data-verify command are being executed.
BLANK CHECKING NOW!	Target MCU deletion check command is being executed.
MCU ERASING NOW!	Target MCU deletion command is being executed.
DOWNLOADING NOW!	The file is being down-loaded.
FILE DELETE ERROR!!	File deletion error (check necessary disk).
-FILE SYSTEM ERROR!-	CF defective card and the CF card are detached from the RC.
CANCEL!! ...	Stop of cancellation of command and file dump.
FOLDER CREATED! ...	The folder was made.
ERROR! NOT CREATED!	It failed in the folder making.
ERROR!! EXIST NAME!	It tried to make the folder by the existing file name.
DELETING NOW....	During the file deletion.
FOLDER UP!! ...	It returns to a high-ranking folder.
GO TO MENU!! ...	It returns from on the route to the menu to the menu from the menu folder.
-FILE NOT FOUND-	It files in the opening folder, the folder exists, and it is not anything either.
DELETE THIS FILE?	Deletion confirmation of file.
DELETE THIS FOLDER?	Deletion confirmation of folder.
FILES ALL DELETE?	Deletion confirmation of all files in folder.
EXECUTE THIS FILE?	Execution confirmation of execution file.
MCU NO CONNECTION!	Vcc of MCU cannot be confirmed by the command execution.
TARGET MCU CHANGE?	Change confirmation of target MCU.
FIRM-WARE UPDATE?	Improvement date confirmation of firmware.
MAKE THIS FOLDER?	Confirmation of folder making.
S=YES / B=NO	Execution/cancellation selection confirmation.
x COMMAND OK!	Kind of normal termination x= command of command.
CHECK SUM = yyyy	Check sum yyyy = sum value.
x COMMAND ERROR!	Kind of abnormal termination x= command of command.
ERROR CODE = zzzz	Error kind zzzz = code of error (two digits) and status (two digits).

### Japanese (katakana) display message list

Message	State
EFP-RC Ver. 4.02. xx SUISEI DENSHI SYSTEM	RC initialization completion.
セッテイサレテイルMCU-TYPE	It entered target MCU change mode.
FIRMWARE カキカエチュウ!	Improvement date inside of firmware.
MCU プログラム チュウ!	Target MCU program command is being executed.
MCUデータ ヨミコミチュウ!	Target MCU data load command is being executed.
MCUデータ ト HXWヒカクチュウ!	Target MCU and HXW are being verified.
ショウキョサレテイルカ カクニンチュウ!	Target MCU deletion check command is being executed.
MCU ショウキョ シテイマス!	Target MCU deletion command is being executed.
ファイル ダウンロード シテイマス!	The file is being down-loaded.
ファイル ショウキョ エラー!!	File deletion error (check necessary disk).
-ファイルシステム エラー!-	CF defective card and the CF card are detached from the RC.
キャンセル!! ...	Stop of cancellation of command and file dump.
ファイル ショウキョチュウ...	During the file deletion.
フォルダ - ショウキョチュウ...	The folder is being deleted.
フォルダ - サクセイ シマシタ!..	The folder was made.
エラー! サクセイ デキマセン!..	It failed in the folder making.
エラー! ナマエハ ツカワレテ イマス	It tried to make the folder by the existing file name.
フォルダ - ヲ モトシマス!! ...	It returns to a high-ranking folder.
メニューニ モトリマス!! ...	It returns from on the route to the menu to the menu from the menu folder.
-ファイルガ ナニモ アリマセー	It files in the opening folder, the folder exists, and it is not anything either.
コノ ファイルヲ ショウキョシマスカ?	Deletion confirmation of file.
コノ フォルダヲ ショウキョシマスカ?	Deletion confirmation of folder.
ファイル スベテ ショウキョシマスカ?	Deletion confirmation of all files in folder.
コノ ファイルヲ ジツコウ シマスカ?	Execution confirmation of execution file.
TARGET MCU ヘンコウシマスカ?	Change confirmation of target MCU.
FIRM-WARE カキカエマスカ?	Improvement date confirmation of firmware.
コノ フォルダヲ サクセイ シマスカ?	Confirmation of folder making.
S=ジツコウ / B=キャンセル	Execution/cancellation selection confirmation.
S=ヘンコウ / B=キャンセル	Ditto.
S=カキカエル / B=キャンセル	Ditto.
x コマンド OK!	Kind of end x= command name.
チェックサム = yyyy	Check sum yyyy = sum value.
x コマンド エラー!	Kind of abnormal termination x= command name.
'エラーコード' = zzzz	Error kind zzzz = code of error (two digits) and status (two digits).

## Error code table

Code	Content of error	Status	Content of status
01	System error	00	RAM check error
		01	FLROM check error
		02	FLROM Write error
		03	FLROM Erase error
		04	EEProm Write Error
		05	EEPROM Erase error(not use)
		06	MCU unit check error
		07	EEPROM Read error (Do not reply).
10	Serial I/O error	00	Overrunning error
		01	Framing Error
		02	Parity error
		03	I/O error when communicating checkers
11	Character error	00	Ascii to Binary Conversion error
		01	Binary to ascii Conversion error
		02	Ascii to Binary At communication Conversion error
		03	Binary to Ascii At communication Conversion error
12	Type error	00	Command code not defined
		01	Command extension code error
		02	MCU type error
		03	RS type error
		04	ID check type error
		05	Address check type error (internal processing error)
		06	Reply type error (internal processing error)
		07	Block set type error
13	Checksum error	00	Command reception sum error
		01	HEX reception error
		02	Sum-Error when communicating checkers
14	Format error	00	HEX reception format error
		01	Command reception format error
20	Parameter error	00	Data error
		01	Beginning address error
		02	End address error
		03	The offset address error (Move address at the move).
		04	Error of beginning and end address reversing
30	Timeout error	00	Data transfer time-out error

40	MCU Unit error	00	
41	Device error	00	Parallel device check error
		01	Serial device check error
		02	BUSY time-out error
		03	Serial BUSY "L" check error
		04	Clock check error
		05	Cereal Read status error
		06	Cereal BUSY "H" check error
42	Status error	00	Status is unconfirmed.
43	Ram data find error	00	Retrieval data none
50	Program error	00	
51	Verify error	00	
52	Blank error	00	
53	Erase error	00	
54	Can not be Erase	00	
55	Lock error	00	
56	READ PROTECT	00	MCU is protected and it cannot access.
70	FILE R/W ERROR	00	The file cannot be opened.
		01	The file which can refer to status does not exist.
		02	The data size of the file is 0.
		03	The length of the file name is 25 characters or more.
		04	A file abnormal writing
		05	A file abnormal reading (The file does not exist).
82	ID disagreement	00	
83	ID uncollation	00	
84	Boot-sum disagreement	00	
90	Forced ending	00	Unused?
99	Command cannot executed.	00	The command with the device cannot be executed.
		01	The command cannot be executed with SYSYTEM Firm.
F1	CF card error	00	The CF writing is abnormal.
		01	The CF reading is abnormal.
		03	HXW file Header reading is abnormal.

- When the error occurs, It displays by four digits continuing the code and status.
- The error code not generated in the current state either has been described.

## About the check disk of the CF card

### Check CF card in Windows XP

Click the right button of drive name(EFP-RC\_V100) of the CF card with a mouse from Explorer, and choose a property (Fig.1).Click the left button of the tab of the tool. (Fig.2)

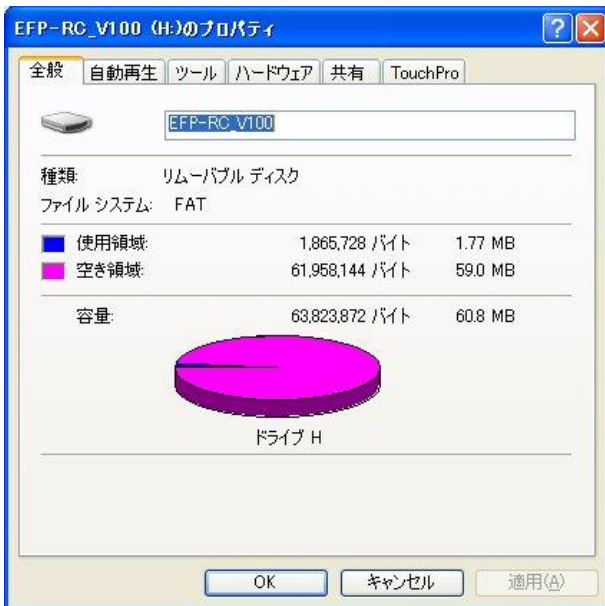


Fig.1



Fig.2

This option checks an error of the volume. Click the left button "check". (Fig.3)



Fig.3



Fig.4



Fig.5

Scan a bad sector when it restore a file error automatically, and turn on a check to "restore".

It advance to phase 1 of fig. 4, phase 2 of fig.5 when you click the left button of the start.And it finishes in fig.6.



Fig.6

When folders such as FOUND.000 were made on the route of the CF card, please delete every folder. As for FOUND.000, a hidden attribute is set. An option of the all display is necessary.

## About the format of the CF card

Format CF card in Windows XP

### Format from the management of the computer

From Explorer, click the right button of the My Computer with a mouse and choose management and click the left button. Fig.1 - Fig.2

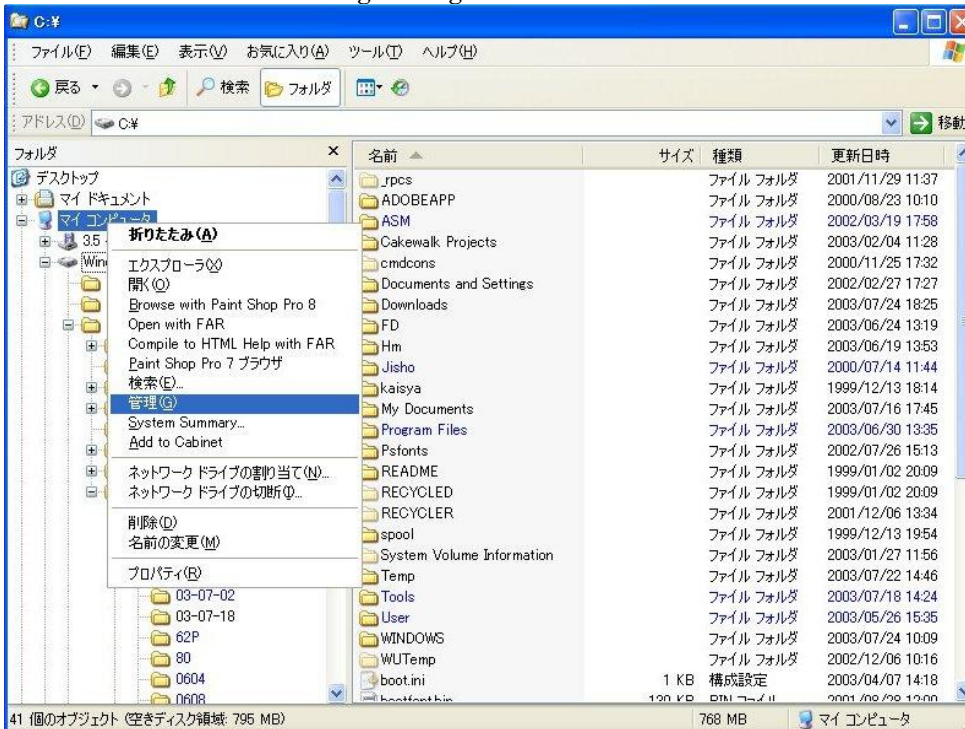


Fig.1

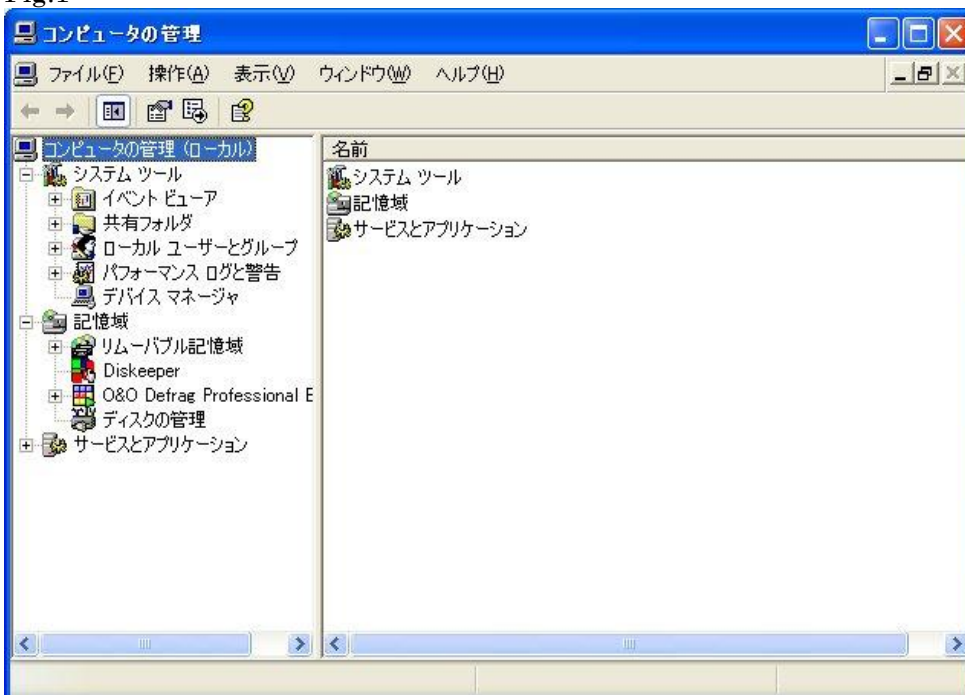


Fig.2

Click the management of the second disk from the lower left. Following page fig.3

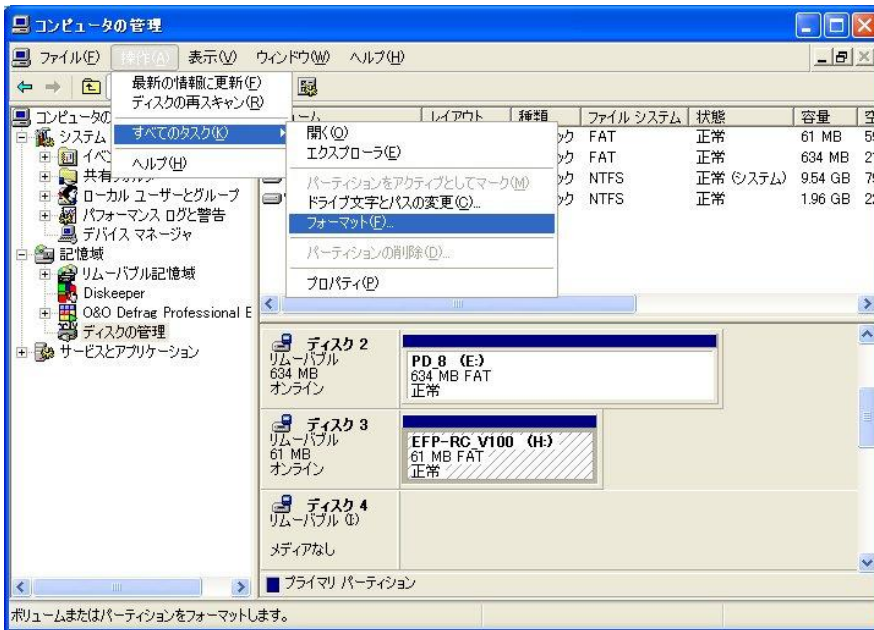


Fig.3

When choose a tab of the operation after having clicked the assigned drive of the CF card once and, from all tasks, click the left button of the format. A dialogue of fig.4 opens.



Fig.4



Fig.5

Click V mark of the right-side end and choose 2048 to change an existing set price of the allocation unit size. Fig.5, Fig.6 (Choose a use cluster and format it freely, if necessary)



Fig.6

CF card is formatted when it click OK.



## Normal format

Click the right button of the drive assigned to a CF card from Explorer and click a format.

A dialogue of Fig.2 is displayed. Fig.1 - Fig.2

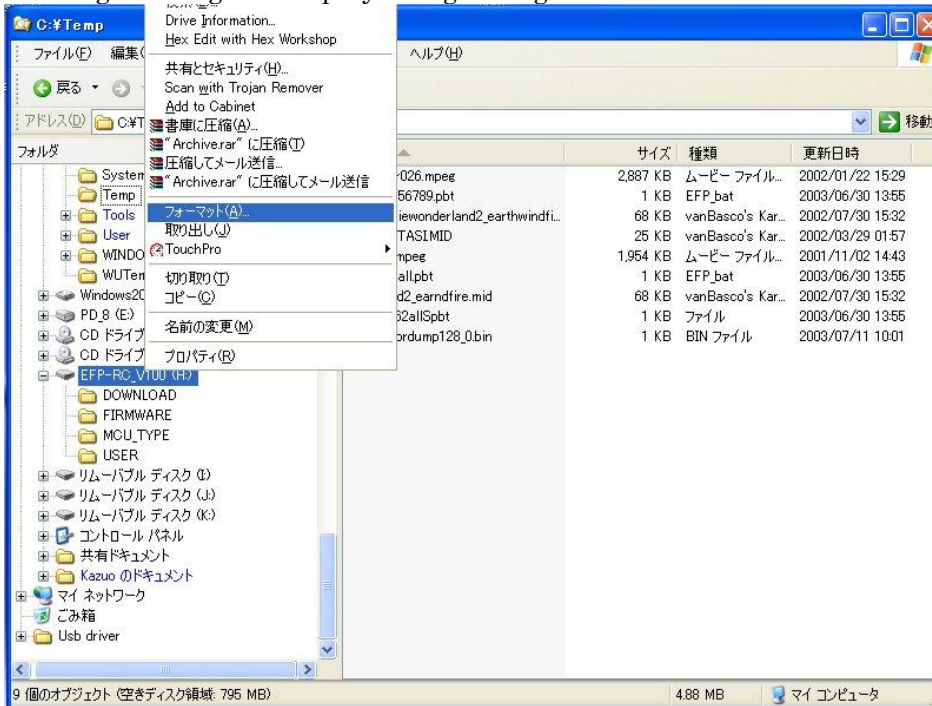


Fig.1



Fig.2



Fig.3

File system becomes established in FAT32. Click √ mark of the right-side end for non-correspondence in EFP-RC under the present conditions and change it in FAT (Fig.3). The normal format, it cannot change of the allocation unit size. It depends on capacity, but it becomes the 1,024 bytes neighbor, two sector / clusters. CF card is formatted when it click a start.

## Notes

- When the CF card is usually formatted with WINDOWS XP, It is formatted in predetermined (two sector cluster). (It is possible to select it)
- Especially, please note that it is when the format becomes predetermined FAT32 in WINDOWS XP (Depend on the CF capacity). (It is possible to select it)
- It is made on the route when down-loading it by the menu display without selecting the folder.
- When the correspondence folders linked with the menu are deleted, the thing which opens from the menu cannot be done.
- Please note that the file in the SYSTEM folder comes to operate abnormal when it deletes/it is changed.
- All the deletions of the file and the folder do not depend on the attribute setting of the file, and are deleted.
- It is recorded that the small letter is used for file (The extension is included) name and foldername by the long file name.
- Each command processing time to target MCU depends on the MCU clock frequency of the target substrate.
- The operation specification and the circuit, etc. are a previous notice but have the changed thing.

## About the partition

- A usual CF card is formatted by one partition. Only the first partition is used in RC though two or more partitions can be made with a disk tool.

## About the operation confirmation sound and the warning sound

- The long vowel of 500mS continues five times when the command is completed because of the operation sound when it is normal.
- The short sound of 50mS rings once when the key is input.
- Be that the error it occurs some that the short sound of 50mS continues five times.
- It is some warning sounds that the short sound of 50mS continues three times.

## About the action when the trouble occurs

- Please check disk or scan disk must operate from the personal computer to the CF card with a card reader etc. on the market and do not damage the file composition or check/restore it when the malfunction happens frequently.
- When the power supply is cut while the file down-loading and deleting it and the connection with USB is cut, it is likely to become the above-mentioned. (The thing that the CF card is damaged is few)
- Please format the CF card from the personal computer newly even if you restore it with check disk when there are a lot of malfunctions.
- When the power supply is intercepted while updating the firmware, it is not possible to restore the firmware in former state.

## Revision and Amendment

### VERSION 4.02.05

- Change a main body of RC setting routine

### VERSION 4.02.06

- High-speed start addition at the time of the power supply injection

### VERSION 4.02.07

- Function addition to convert a Mot(s)/Hex file into a Hxw file \*remove 4bit and draft
- Add a function to carry out automatically at the time of power supply injection, with one set of PBT and HXW file existing on a route.
- Addition Script/object composition file (HHW) for next versions practice routine
- Speed up a communication baud rate of R8C/14-(1Line)
- Life counter addition of the PBT practice

### VERSION 4.03.00

- Addition of correspondence MCU
- Change a CheckSum calculation method of 8bit QzROM  
Changed that it skipped a protection number into having added "FFh".
  - 7544-9 group
  - 385x group
  - 38Dx group

### VERSION 4.03.01

- Revise what a file made by file name of one letter (except the extension) was not able to download
- The addition of the check sum addition command
- MCU item revision and addition

### VERSION 4.03.05

- Revised that an error (Error code : 1201) sometimes occurred when carried out a Y command.

### VERSION 4.03.07

- MCU item revision and addition  
Change MCU Type05 R8C/14-(1Line) to R8C/14-1B(1Line)  
Add MCU Type31 R8C/3x,Lx(Type1)  
Add MCU Type32 R8C/3x,Lx(Type2)  
Add MCU Type33 R8C/2x(Type1)  
Add MCU Type34 R8C/2x(Type2)  
Add MCU Type35 R8C/2x(Type3)

April 09, 2010

Suisei electronics system co.,ltd.